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# STEEL

*For forty-eight years*—IRON TRADE REVIEW

April 23, 1931


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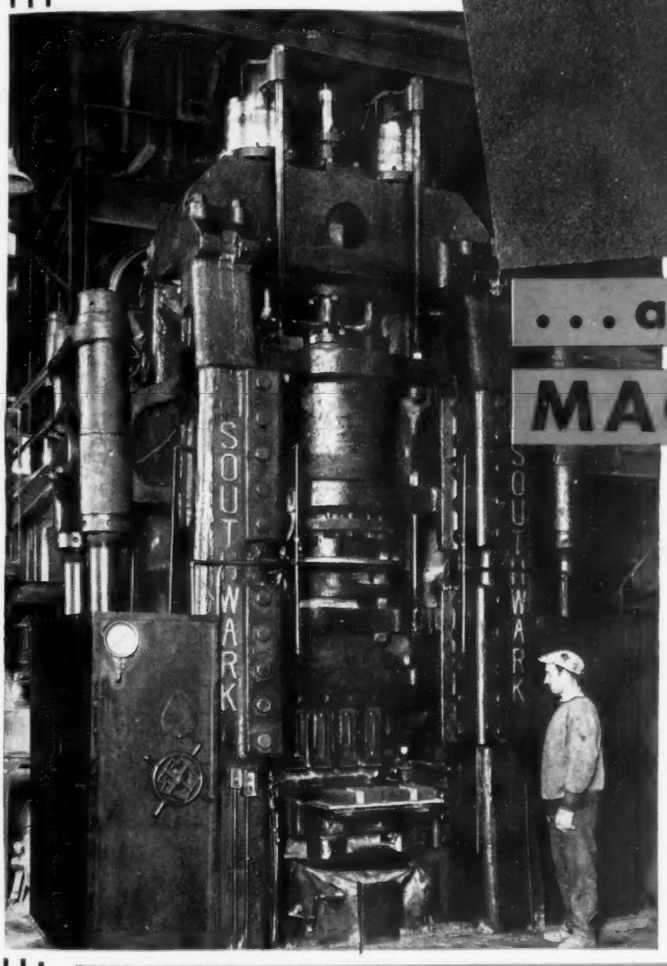

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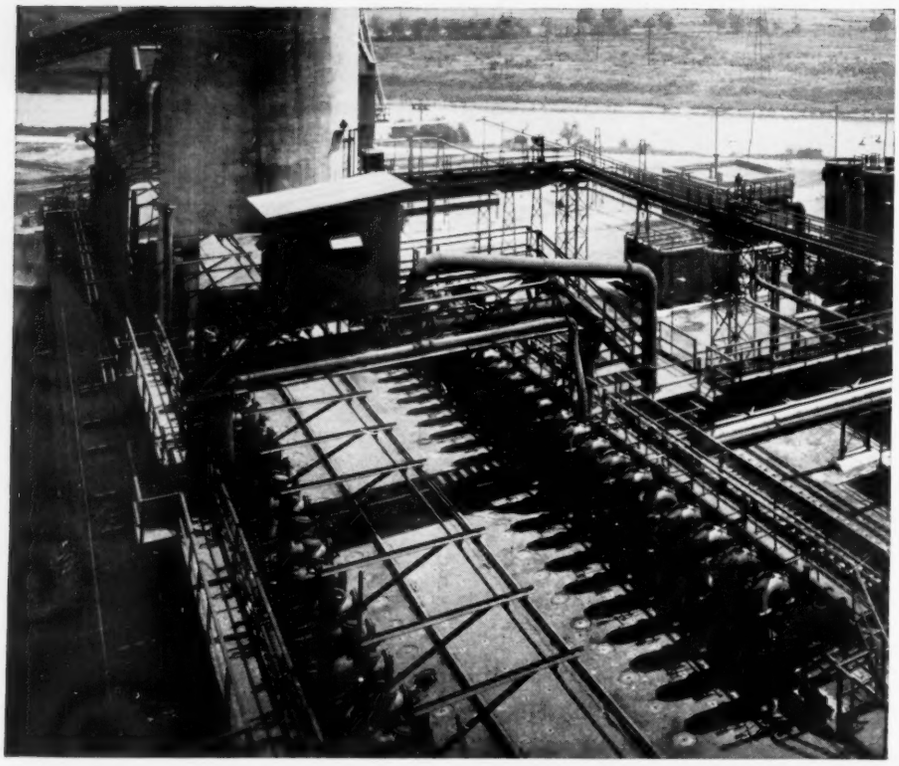

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# CONTENTS

***April 23, 1931***


THIS WEEK IN STEEL ..... 21

- Steel Corporation Adopts Pension Plan ..... 23
- Sweeping Changes Announced in Sheet Classifications .... 24
- Beware Radical Laws, Metal Trades Association Warned .. 25
- Steel Corporation Licensed To Make Krupp Steel ..... 26
- Europe Expects America To Lead Recovery in Steel ..... 27
- Iron Ore Prices Re-established on 1930 Basis ..... 29

Industrial Men in the Day's News ..... 30
Obituary ..... 31
Here and There in Industry ..... 32
Mirrors of Motordom ..... 33

EDITORIAL—Are You Backing Your Trade Association? .... 34
THE BUSINESS TREND ..... 35
1930 Steel Earnings 3.71 Per Cent; Six-Year Low ..... 36

Foundry Industry Preparing for Chicago Convention ..... 39
Casting Chrome-Nickel Steel Requires Special Care ..... 42
Equipment Show Proves Aid to Plant Modernization ..... 44
Machine Age No Detriment to Development of Skill ..... 46
Hoist Design Progresses with Manufacturing Methods ..... 48
Novel Pipe Joint Is Used for Hudson River Crossing ..... 50
World's Fair Building Has Cable Suspended Dome ..... 51
Air Operated Signaling System Serves Midwestern Steel Mill .. 53
Installs All-Welded Steel Plate Storage Tank ..... 54
Scanning the Technology of Steel ..... 56
Machine Tools and Plant Equipment ..... 57

MARKET SUMMARY ..... 65
MARKET REPORTS AND PRICES ..... 66-96
CONSTRUCTION AND ENTERPRISE ..... 99
NEW TRADE PUBLICATIONS ..... 103
WHERE-TO-BUY DEPARTMENT ..... 105
ADVERTISERS' INDEX ..... 136



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# This Book has Solved Many Steel Problems

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# STEEL SERVICE

Volume 89 Number 17

STEEL

*For forty-eight years*—IRON TRADE REVIEW

PRODUCTION ◆ PROCESSING ◆ DISTRIBUTION ◆ USE

# This Week in Steel

TIME was when the annual stockholders' meetings of many steel producers, like those of other great corporations, were largely perfunctory—about as necessary to the operation of the industry as parsley is on fish. A handful of bored stockholders usually heard a phlegmatic secretary drone the reports, then mechanically re-elected directors.

Now, however, these meetings are drawing like a Broadway hit. Stockholders are displaying an avid interest in the direction of their corporations, while managements in turn are tireless in taking stockholders into their confidence and enlisting their support. Within the past week the two largest steel interests have staged unusually important meetings.

At Hoboken, Monday, United States Steel shareholders heard and approved (Page 23) the new, generous retirement plan, were informed that even at present prices a slight expansion in production would insure a reasonably good year, were assured concerning general business conditions.

Nearby, at Newark, the Bethlehem proxy marathon (Page 23) was going into its ninth day. There still was every indication that 72 per cent of Bethlehem stock was favorable to Chairman Schwab and his bonus system, but the laborious checking of proxies continued.

## Steel a 5¾ Billion Dollar Industry

Anxiety concerning earnings may be one explanation of this quickened interest of stockholders. STEEL, carrying on a tradition of *Iron Trade Review*, presents (Page 36) its sixth annual financial analysis of the steel industry. Twenty producers, representing 90 per cent of the steelmaking capacity of the country, earned 3.7 per cent upon their capitalization in 1930—slightly more than one-third of 1929, about two-thirds of the average for the past six years. . . . But the industry is sound. Even in distressed 1930 seventeen of these 20 producers turned in a profit. On last Dec. 31 the entire group had total assets of 5¾ billions, current assets of 1¼ billions, current liabilities of only 242 millions. Capitalization per ton of ingots increased from $59 in 1929 to $65 in 1930.

## Price Movement Indicates Bottom Near

First quarter financial reports, now being issued (Page 28), are heir to 1930's grief, but there is strong likelihood that earnings are now scraping bottom. . . . After 21 consecutive months of decline STEEL's market composite is moving (Page 65) within narrow limits, and, barring a general wage reduction, may be plumbing bottom. . . . There is less talk now than a fortnight ago that a wage reduction in steel is imminent. . . . It is to safeguard profits that a leading maker of sheets is reclassifying (Page 24) its products, taking full cognizance

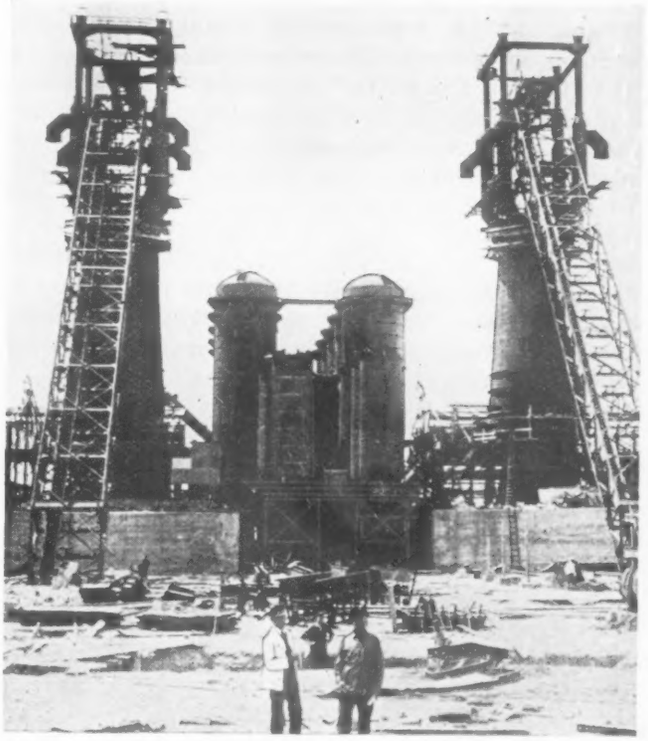
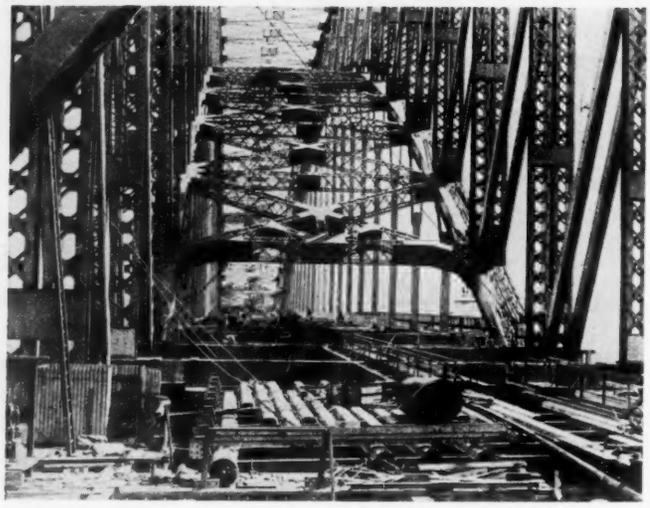


*Photo Courtesy Economic Review of the Soviet Union*

These blast furnaces will supply hot metal for the soviet's Kerch steelworks in the Crimea



*Keystone Photo*

The greatest achievement of British engineering, is what they term the Sydney harbor bridge in Australia, now nearing completion. This view shows the roadway level

of the continuous process. Cold-rolled sheets is a grade making its debut. If the sheet industry accepts this lead the weakest price situation in steel may be corrected.

## Mix Up Own Remedy, or Radicals Will

Some of these attenuated profits will be expended in stabilizing employment if the industrial clinic conducted at Cincinnati last week (Page 25) by the National Metal Trades association bears fruit. There was no mincing words that industry is on the defensive; that if it does not adopt some form of unemployment insurance before the next depression—a hopeful admission that the present one will be outlived—some of the nostrums now advanced will be adopted by legislators. . . . In this endeavor the trade association may be genuinely helpful, as it has in promoting standardization and collecting industrial data—another reason why it is penny wise and pound foolish for any manufacturer to strike association dues (Page 34) from his budget.

## Ford Shutdown for New Model?

Ford will close his main plant at Detroit for two months this summer, possibly beginning in June, while his branch assembly depots work off a large surplus of parts, is the gripping news from Detroit (Page 33). And what is more logical than to speculate that Ford will utilize this hiatus for retooling for the manufacture of a new model, perhaps the long-awaited light eight? . . . Detroit is a hive of gossip these days (Pages 33 and 62): Chevrolet is giving Ford a real race again; Austin has corralled sufficient credit for completing 5400 bantams, to be sold chiefly in South America; Chrysler will refurbish its deluxe eights; Ford may go to free wheeling and Chevrolet to a syncro-mesh transmission; a new wheel which is mostly brake drum is being tested.

## When the Musical Note Sounds—

A soft answer not only turneth away wrath but may also summon an ingot, if the experiment (Page 53) of a midwestern steel producer succeeds. For ear-splitting signal devices it is substituting air-operated horns uttering soft notes which will carry even above the clash of the mills. . . . In this atmosphere of repression may be fabricated some of the steel for Chicago world's fair buildings which in their mass effects, broad planes and color tones (Page 51) will belie the gentle origin of their steel. . . . Within plain view of these bizarre structures on Chicago's lakefront American foundrymen will convene (Page 39) for their annual convention and exhibition next month. Technical sessions and exhibits will be under one roof.

## Market on Scrap Interest Strong

Scrap dealers in their local chapters will hark back to the days of the little red school house and be rated (Page 28) for attendance, co-operation, achievement, payment of dues and meritorious programs as they vie for a cup from their national organization. . . . Its efficiency, the scrap trade believes, is conserving iron ore, whose price has been extended (Page 29) in some long-term contracts. Most operators are unwilling to sacrifice their deposits in view of the decreasing supply, yet the market lacks the strength that might have been expected. . . . Britain is converting some of its ore into steel ties which are finding (Page 92) increasing favor with the railroads. . . . Steel "sleepers" have never found much favor with American railroads, but the 152-pound rails the Pennsylvania will soon lay (Page 28) may direct attention to roadbeds.

## Special Alloys Develop Special Art

Chrome-nickel steel castings have so established themselves for decorative effects in skyscraper architecture that a New Jersey foundry (Page 42) is devoting its entire facilities to their manufacture. . . . In line with most other manufacturers of chrome-nickel steels in their rolled forms, the United States Steel Corp. is identifying itself (Page 26) with the Krupp patents. . . . Europe may lead in special alloys, but it is looking to the United States for the cue (Page 27) to the business recovery. . . . Washington intimates that even to speed this recovery it cannot declare a moratorium (Page 28) on enforcing antitrust laws. . . . San Francisco, however, intends to do its bit (Page 86) by building its Golden Gate bridge requiring 110,000 tons of steel.

# Steel Corp. Adopts Pension Plan; Business Outlook Fair

NEW YORK—Stockholders of the United States Steel Corp. at their annual meeting at Hoboken, N. J., April 20, approved a new retirement plan for the personnel of the Corporation and its subsidiaries and heard their officials comment assuringly upon business.

Present prices for steel are likely to be maintained throughout the year, said James A. Farrell, president, and if somewhat better operating rates develop—as seems probable—a fairly good year is in store for the Corporation.

Myron C. Taylor, chairman of the Corporation's finance committee, presided. To Mr. Farrell he gave full credit for the program, making retirement compulsory at 70 years of age and possible at 65 upon agreement between the affected employe and the company. Details of the plan were given in STEEL for April 16, page 17. The plan, Mr. Taylor said, represents the best judgment of Mr. Farrell Mr. Taylor and other members of the committee.

### Other Plans Were Studied

Mr. Farrell said that pension plans of other leading industrial companies were studied but it was thought advisable to follow an independent path and construct a plan for the Corporation which would best suit its individual case.

He said the company wanted to consider those who had retired not as ending their service with the company, but as constituting a supplemental service which would be called upon in case of need. He pointed out the interest in and value to the company of those now on the pension list. He said that this year men with 50 years service records were on the list of those to be retired and that some had been with the corporation for 52 years.

"I believe the new pension plan to be the greatest single thing for the welfare of its men that the company has done," declared Mr. Farrell. "It gives added incentive to the workers and the security which comes from a knowledge that they will be taken care of."

Employes of many subsidiaries now eligible for retirement, principally upon the basis of 1 per cent of their average annual salaries or wages for the past ten years multiplied by the number of years of service, have been notified the plan is effective May 1.

### Railroad Head To Retire

Of the nonsteel producing subsidiaries, the first high official to retire is A. F. Banks, president of the Elgin, Joliet & Eastern railroad, 37 years with this Chicago district subsidiary. He will be succeeded May 1 by S. M. Rogers, now vice president.

Mr. Farrell, now eligible under the 65-year clause, becomes 70 on Feb. 15, 1933. Steel corporation officials obviously are not discussing any successor, as much may happen in 21 months, but the daily press has mentioned I. Lamont Hughes, president of the Carnegie Steel Co., and George Gordon Crawford, now president of the Jones & Laughlin Steel Corp., Pittsburgh, but formerly head of the Tennessee Coal, Iron & Railroad Co., as possible successors.

The five directors whose terms expire this year were reappointed. These are: George F. Baker, Eugene J. Buffington, James A. Farrell, Thomas W. Lamont and J. P. Morgan. A committee to administer the funds of the profit sharing plan was appointed, consisting of J. P. Morgan, Nathan I. Miller and Percival Roberts Jr.

In speaking of unemployment, Mr. Taylor said that of a normal force of 241,000 for the Corporation and its subsidiaries, 224,336 had been employed either part time or full time during the past year, and of this number 79,000 were employed on regular full time schedules.

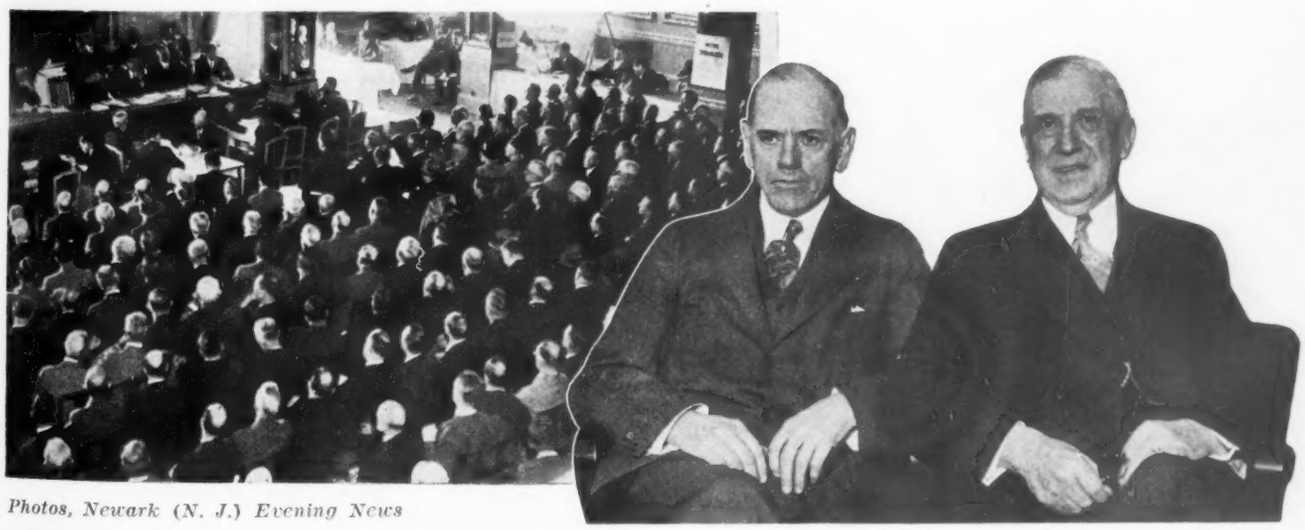
He said that about 13,000 had been released between Oct. 1, 1930, and April 30, 1931, for causes beyond the control of the employe or the company and that deducting this the men at work either full time or part time total 96 per cent of the regular force.

## Bethlehem Bonus Votes Still Being Checked

The annual meeting of stockholders of the Bethelhem Steel Corp. entered its seventh day Tuesday, April 21, at Newark, N. J. With at least several days more in prospect a new record for length of annual meetings for large corporations appears assured.

However, the sessions no longer are being attended by the general public, following the dramatic incidents attending the opening last week when Charles M. Schwab, chairman of the board, explained details of the Bethlehem bonus system and asked stockholders for a vote of confidence in its administration.

On the face of the returns of the vote last week, bonus forces have 72 per cent of the corporation's stock, and while vindication of the bonus system was assured, 100 clerks, watchers, officials and attorneys now are busily engaged in checking the proxies voted. The official results still are to be reported.



*Photos, Newark (N. J.) Evening News*

*At Bethlehem's annual meeting. The chairman, Charles M. Schwab, and president, Eugene G. Grace, were smiling when a vote of confidence and continuance was indicated for the bonus system by holders of 72 per cent of the stock*

# Sweeping Change Announced in Classification of Sheets

IN AN endeavor to clarify and stabilize the market for steel sheets, new and important classifications have been announced by the American Rolling Mill Co., Middletown, O., effective May 1. Prices will be named shortly, and it is understood other leading sheet producers will adopt similar schedules.

All grades of sheets, except galvanized, are classified as hot rolled; hot rolled annealed; or cold rolled; whether the sheets are rolled on continuous or old type mills. No change is made in the classification of galvanized.

The new classifications, according to opinion in the industry, is one of the most revolutionary measures ever adopted in the marketing of steel sheets. The announcement by American Rolling Mill follows:

"The necessity of simplifying the present system of gage differentials and standardization of flat rolled steel has been apparent to buyer and seller alike for a long time.

"The need of standardization of quality with a nomenclature representative of the character of the product together with a differential above or below a base price more in harmony with actual cost became of paramount importance with the introduction of the continuous mill method of rolling sheets.

"If this new method of rolling and processing sheets was adopted by a number of corporations and if they and other companies revamped their mills, furnaces and methods of processing strip and sheets, the confusion both to buyer and seller proved conclusively that old methods of arriving at gage differentials and standards of quality were obsolete and totally inadequate under the new conditions.

"Under the old conditions the buyer could obtain the quality suited to his requirement by specifying the process by which the material was to be produced, that is if full pickled cold rolled sheets were required, the sheets were so ordered and he received the product resulting from such processing. As standards of quality became more rigid and due to several ways and new methods of manufacturing sheets, that procedure of ordering sheets became unsatisfactory and precarious.

### Eliminates Specifying Process

"The result has been that sheets are now ordered to standards of quality to meet with requirements and both producer and buyer do not therefore think in terms of processing but instead in terms of material which will satisfactorily fulfill the buyer's needs.

"As a matter of fact, buyers are no longer particularly interested in the methods by which sheets are produced but they are vitally interested in the finished product, its cost, and utility in fabrication and service. Logically, then, the price and quality of sheet products should be based on the cost and grade ordered. This eliminates the necessity of specifying the processing or treatment of the sheets to meet the buyer's best requirement. It is the established practice to purchase hot-rolled strip and cold-rolled strip in this manner.

"In the face of these conditions, and as creators of the continuous method of rolling, we have felt keenly the responsibility for developing a new selling structure in harmony with costs and improved production methods which will adequately represent the needs of the sheet consuming public and be fair alike to consumer and producer. It is our earnest hope and belief that the new method will be recognized as of merit and value to the trade at large.

"After long earnest study and analysis of all methods of production we have established such a structure and propose to sell our products on this new basis beginning May 1, 1931. Briefly, it provides:

**Hot Rolled Sheets 24 to 48 Inches Wide**

| Gage | | Differential per cwt |
|---|---|---|
| 8 and heavier | Deduct | 5c |
| 8 to 10 | Base | Base |
| 11 | Add | 5c |
| 12 | Add | 10c |
| 13 | Add | 15c |
| 14 | Add | 20c |
| 15 | Add | 25c |
| 16 | Add | 30c |

Annealed (Blue annealed or box annealed) 15c per cwt.
Extra smooth 25c per cwt. (applicable to box annealed unpickled sheets only)

"Hot rolled sheets are the product from continuous mills without any tempering treatment and can be used for ordinary forming.

"When annealed sheets (box or blue annealed) are required or when sheets wider than 48 inches are needed it will be necessary to make them on other than continuous mills and require process annealing, the extra for which is 15.00c per cwt. Also when less than 5 tons per item are required it will be necessary to make such tonnage of sheets on jobbing mills and the sheets must be further annealed. The 15.00c per cwt. will be added.

**Hot Rolled Annealed Sheets, 24 Inches and Wider 24 Gage Base**

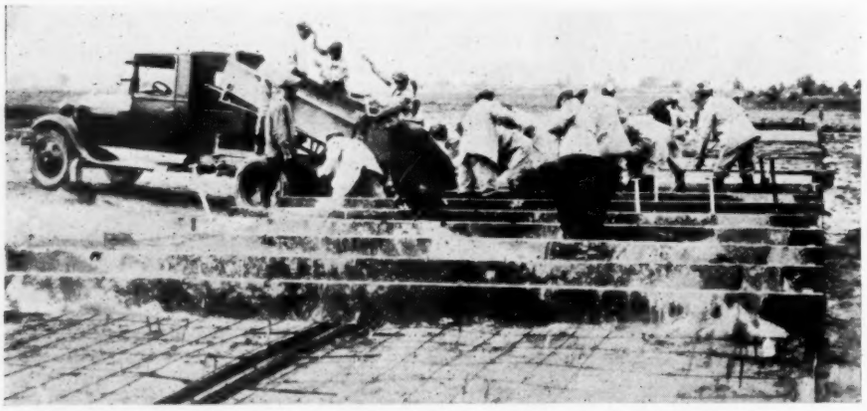
| Gage Number | | Differential per cwt |
|---|---|---|
| 17 | Deduct | 35c |
| 18 | Deduct | 30c |
| 19 | Deduct | 25c |
| 20 | Deduct | 20c |
| 21 | Deduct | 15c |
| 22 | Deduct | 10c |
| 23 | Deduct | 5c |
| 24 | Base | Base |
| 25 | Add | 5c |
| 26 | Add | 10c |
| 27 | Add | 15c |
| 28 | Add | 25c |
| 29 | Add | 40c |
| 30 | Add | 50c |

Extra smooth 25c per cwt. (applicable to unpickled sheets only)
Deoxidizing 15c per cwt extra.

**Extras for Hot Rolled and Hot Rolled Annealed Sheets**

| Pickling | Dry per cwt | Oiled per cwt |
|---|---|---|
| 12 gage & heavier | 25c | 25c |
| 13 to 16 gage | 35c | 35c |
| 17 to 21 gage | 45c | 45c |

(*Concluded on Page* 26)



*RUSSIA ADOPTING MODERN HIGHWAY CONSTRUCTION METHODS*

*Under supervision of American engineers these Russians are building a concrete highway, reported to be the first in that country, in connection with a* $60,000,000 *industrial city which the Austin Co., Cleveland, is erecting for the soviet* 270 *miles east of Moscow. In this new city* 150,000 *Ford cars will be built annually. The Austin contract includes the design and construction of every feature of the city, and this road will be one of its thoroughfares*

# Beware of Radical Laws, Metal Trades Warned

PROBLEMS arising from unemployment received the major share of attention at the National Metal Trades association's thirty-third annual convention in Cincinnati, April 15-16.

Unemployment insurance, social legislation, world unrest, the part machinery is playing in economic affairs, and what to do about it all, were the themes of many papers and comments. No resolution pledging the association to any course was adopted, and the formal report of the industrial relations committee was much like the statement issued by the committee some time ago, (STEEL, March 12, page 18), wherein employers were cautioned to try every means for employment stabilization before adopting insurance.

On this point the association's commissioner, Homer D. Sayre, summed up the association's ideas at the close of the convention when he said: "More attempts at experimental social legislation are being made at this time than ever before. It behooves business men everywhere to co-ordinate their forces and to co-operate to insure the continuance of the fundamental principles on which our government has been founded."

**Calls for Industrial Leadership**

"Employer associations are on trial," declared Dr. Otto P. Geier, Cincinnati Milling Machine Co., and chairman of the industrial relations committee. "Problems of cycles of unemployment cannot be placed entirely at industry's door, but unless industry exerts a leadership in finding a solution, the patent medicine vendors, cocksure reformers, some college economists, and vote-getting politicians will offer legislative ointment as a sure cure for unemployment.

"Is industry to sit back and have the gunshot prescriptionists hold the stage? Or, will it energetically enter into a systematic study of sound proposals to care for those helplessly thrown out of work? Shall industry continue a policy of mere opposition, which is bound to fail in the end, or will we study, plan and propose sound economic principles, to be incorporated in any laws that are to be offered?

"We should not be so deeply concerned over the prospect that an unemployment insurance scheme is on the way, but rather that it should contain American elements, should be preventive in character, making for thrift, stability and good industrial citizenship, independence, and self-reliance. Surely, legislative proposals so far offered do not contain these safeguards."

Dr. Geier recommended that all association branches hold monthly meetings to devote more attention to current problems, such a plan having been inaugurated by the Cincinnati group.

The suggestion that industry is on the defense in the matter of "social legislation" was contained in a paper by Glenn A. Bowers, of Industrial Relations Councilors, New York, when after a summary of world-wide experiences with unemployment insurance he said:

"American industry has one more chance"—meaning one more chance before the next depression. "Either it will solve this problem for itself, or compulsory insurance is certain to come." He told the association that it has "a glorious opportunity" to take the initiative.

It was disclosed by M. B. Folsom, assistant treasurer, Eastman Kodak Co., that the Rochester, N. Y., unemployment insurance plan was conceived originally by the Eastman company in 1922 and it was suggested to a number of companies. But it was not until the present depression that its sponsors "got it through." This is the plan (STEEL, Feb. 26, Page 17) in which 14 companies have agreed to set aside certain percentages of their payrolls annually to provide for unemployment insurance. Mr. Folsom said more companies are joining and that they hope to have 50 per cent of the industrial employers in the Rochester district in by the close of the year.

Mr. Folsom explained that years of study had been devoted to unemployment—"seasonal, cyclical and technological," and that during this period he had occasion to be in Europe where he observed the operation of the European plans.

"A government system is absolutely impracticable," he declared. "First, it does not provide an incentive to employers to do everything they can to stabilize employment. Its administration is under political control, and it becomes easy to extend payments to those not entitled to the insurance; then it is merely a dole.

"Just as accidents have been reduced by those who must pay compensation for accidents, so will efforts be made to stabilize employment if the employer has to pay his men during periods of unemployment."

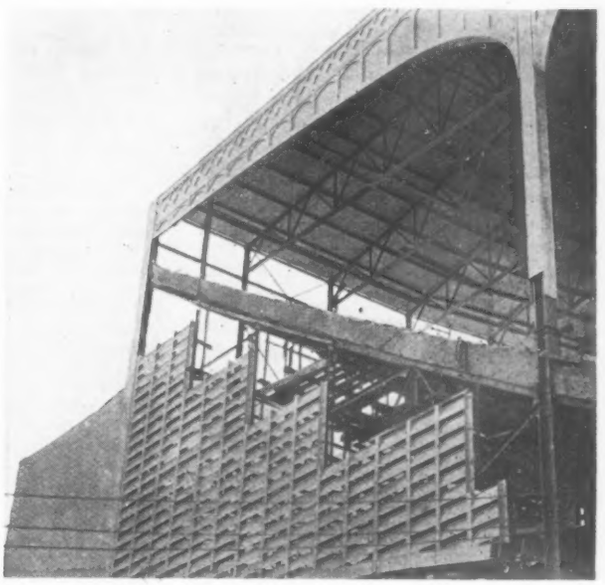
**Private Initiative Advocated**

A similar view was expressed by James D. Craig, actuary, Metropolitan Life Insurance Co., New York, who said private unemployment insurance will permit the study of actual conditions, and provide for payments on a definite basis. They would be free from the political influences which introduce elements of charity into state insurance plans. He said his company in 1923 and in 1925 asked the New York assembly to pass a law permitting insurance companies to underwrite unemployment policies, and it had been refused.

Referring to the many compulsory insurance and other laws proposed in various state legislatures, J. G. Benedict, Landis Machine Co., Waynesboro, Pa., president of the association, said:

"This depression differs from others in the past only in that it has

(*Concluded on Page* 94)



*Steel carries the load but gets no credit. On the Cleveland municipal stadium aluminum was used for louvers on the grandstand ends and to conceal the columns. Photo by courtesy of Riester & Thesmacher Co., Cleveland*

## Sweeping Changes Made in Sheet Classifications

(*Concluded from Page 24*)

**Drawing**

| | |
|---|---|
| 12 gage and heavier | 15c |
| 13 to 21 | 25c |
| 22 gage and lighter | 35c |
| Stretcher leveling | 25c |
| Oiling | 10c |

Resquaring 5 per cent of price of processed sheets.

**Heavy Cold-Rolled Sheets 24 Inches and Wider 16 Gage and Heavier, 10 Gage Base**

| Gage Number | | Differential per cwt |
|---|---|---|
| 8 and heavier | Deduct | 5c |
| 9 to 10 | Base | Base |
| 11 | Add | 5c |
| 12 | Add | 10c |
| 13 | Add | 15c |
| 14 | Add | 20c |
| 15 | Add | 25c |
| 16 | Add | 30c |

**Cold Rolled Sheets 24 Inches and Wider, 17 Gage and Lighter, 20 Gage Base**

| Gage Number | | Differential per cwt |
|---|---|---|
| 17 | Deduct | 15c |
| 18 | Deduct | 10c |
| 19 | Deduct | 5c |
| 20 | Base | Base |
| 21 | Base | Base |
| 22 | Add | 5c |
| 23 | Add | 10c |
| 24 | Add | 15c |
| 25 | Add | 20c |
| 26 | Add | 25c |
| 27 | Add | 30c |
| 28 | Add | 35c |

**Heavy Furniture Sheets, Stretcher Leveled Not Resquared 24 inches and Wider, 16 Gage and Heavier, 10 Gage Base**

| Gage Number | | Differential per cwt |
|---|---|---|
| 10 | Base | Base |
| 11 | Add | 5c |
| 12 | Add | 10c |
| 13 | Add | 15c |
| 14 | Add | 20c |
| 15 | Add | 25c |
| 16 | Add | 30c |

**Furniture Sheets, Stretcher Leveled Not Resquared 24 Inches and Wider, 17 Gage and Lighter, 20 Gage Base**

| Gage Number | | Differential per cwt |
|---|---|---|
| 7 | Deduct | 15c |
| 18 | Deduct | 10c |
| 19 | Deduct | 5c |
| 20 | Base | Base |
| 21 | Add | 5c |
| 22 | Add | 10c |
| 23 | Add | 15c |
| 24 | Add | 20c |
| 25 | Add | 25c |
| 26 | Add | 30c |

**Autobody Sheets 24 Inches and Wider, 20 Gage Base**

| Gage Number | | Differential per cwt |
|---|---|---|
| 17 | Deduct | 15c |
| 18 | Deduct | 10c |
| 19 | Deduct | 5c |
| 20 | Base | Base |
| 21 | Add | 5c |
| 22 | Add | 10c |

**Extras for Cold Rolled Auto Body Sheets and Furniture Sheets**

| Drawing | Differential per cwt |
|---|---|
| 12 gage and heavier | 15c |
| 13 to 21 gage | 25c |
| 22 gage and lighter | 35c |
| Stretcher leveling | 25c |
| Oiling | 10c |

Resquaring—5 per cent of price of processed sheets

**Seconds (Supplied on Prime Auto Bodies and Furniture Sheet Orders)**

| | | |
|---|---|---|
| 36″ and under | .035 to .024 | 25% |
| 36″ wide and under | .036 and heavier | 15% |
| Over 36″ to 42″ | .036 and heavier | 20% |
| Over 42″ to 48″ wide | .036 and heavier | 25% |
| Over 48″ to 56″ | .036 and heavier | 35% |
| Over 56″ wide | .036 and heavier | 50% |

"The nomenclature by which sheets have been described has been changed. For instance, the designation—'hot rolled annealed' takes the place of sheets which heretofore have been described as 'one pass cold rolled, box annealed, black sheets' and 'blue annealed.'

" 'Cold rolled sheets' take the place of 'single pickled cold rolled' and 'full pickled cold rolled.' This product will be a commercial drain not subject to special inspection and will be supplied in what is generally described as 'mill run.'

"It will be noticed the pricing of hot and cold rolled sheets will be on separate base prices, similarly as hot and cold rolled strip steel.

"Autobody sheets and furniture sheets will be supplied inspected to buyers standards and seconds assorted.

"There is no change in the pricing method of galvanized, long terne or electrical sheets at this time.

"There is no change in size extras for the various grades of sheets."

# Krupp Licenses U. S. Steel To Make Heat, Acid, Corrosion-Resisting Alloys

AN arrangement has recently been concluded by the United States Steel Corp. with Fried. Krupp, A. G., Germany, whereby the subsidiary companies of the Steel corporation are licensed by Krupp under various patents of Strauss, Johnson, Armstrong, Fry, Kuehn and Smith for rust-resisting and heat-resisting and other alloy steels, and for the heat treatment thereof.

This arrangement, which includes the collaboration of Krupp with respect to technical matters in connection with corrosion-resisting and heat-resisting steels, etc., will apply to the products of the Illinois Steel Co., Carnegie Steel Co., American Steel & Wire Co., American Sheet & Tin Plate Co., National Tube Co., and Lorain Steel Co.

The major products manufactured by these companies in corrosion-resisting and heat-resisting steels include shapes, plates and bars, strip, wire products, rope, sheets, tubes and castings.

With the foregoing arrangement the ranks of such steelmaking licensees have been increased to seven interests. Others are Republic Steel Corp. through its Central Alloy division, Crucible Steel Co. of America, Firth-Sterling Steel Co., Ludlum Steel Co., Babcock & Wilcox Tube Co. and Driver-Harris Co.

The Steel corporation is the only interest licensed direct by the Krupps. The other steelmaking licensees are members of the Krupp Nirosta Co. Inc. This interest controls in this country the Krupp patents involved. Krupp Nirosta Co. Inc. also has under a license a large number of companies which buy these alloys in semifinished form and convert them into finished forms. It also has a large group of casting licensees.

## Canadian Steel Industry Would Protect Its Market

Sault Ste. Marie, Ont.—Julian J. Piggott, manager of the British Steel Export association, has outlined to officials of the Algoma Steel Corp. a plan for the rationalization of Canadian steel industry in co-operation with British industry, which is being placed before four major steel companies of Canada.

The four Canadian companies understood to have been approached by Mr. Piggott are Algoma Steel Corp., Ltd., Sault Ste. Marie, Ont.; Steel Co. of Canada, Ltd., Hamilton, Ont.; Dominion Foundries & Steel Corp., Hamilton, Ont., and the Dominion Steel & Coal Co., Ltd., Sydney, N. S.

It is stated that the object of negotiations now in progress is to protect Canadian producers from price-cutting by British manufacturers in the sizes and shapes that Canadian mills are capable of producing, and the diversion to British steel plants of business for the larger sizes and shapes now imported from the United States.

# Europe Expects America to Lead Recovery in Steel

BY VINCENT DELPORT
European Manager, STEEL

THE tide of trade depression that already had covered most of Europe now has reached French shores. Many think that trade recovery must begin in the United States. There are, however, some signs that the downward movement is beginning to spend itself. The opinion prevails in many quarters that stocks generally are low. It is noticed also that demand for iron and steel from Far Eastern markets, particularly from China, is waking up. Finally, iron and steel prices have reached a level which, it is thought, can hardly fall lower. Certainly continental prices have shown some firmness during the latter part of March.

European iron and steel production, on the other hand, has considerably receded during first quarter. Output of raw steel of the principal producing countries during January and February dropped by the following percentages in comparison with the corresponding period of 1930: France, 8.45 per cent; Luxemburg, 22.75 per cent; Belgium, 25.75 per cent; Germany, 37.5 per cent; Great Britain, 42.5 per cent.

**Export Debacle Hurts Worst**

Those countries that depend largely on export trade, such as Belgium and Luxemburg, Great Britain and Germany, find conditions most unsatisfactory. Prices are too low to cover costs under present conditions, when large works are operating at considerably below capacity and consequently working uneconomically. While China now is buying more freely, keen competition is experienced on the part of Japan, which country is itself now less of a buyer than previously. The buying power in South America is considerably reduced and heavy contracts received recently from Russia are at low prices and taken on long credits.

Great Britain's position as an exporting country is particularly vulnerable on account of high production costs. This is reflected in iron and steel exports for the first two months, which totaled 310,898 gross tons, compared with 646,133 tons for the first two months of 1930 and 801,266 tons for the corresponding period of 1929.

Unemployment has increased all over Europe. At the end of February there were over 2,600,000 totally or partially unemployed persons in Great Britain. In Germany it is reported that there are about 5,000,000 men partly or wholly unemployed, while in Italy there were 721,976 unemployed Jan. 31, of whom 180,494 were receiving official assistance.

A number of iron and steel works in Great Britain and Germany have been completely closed down, while others, in those countries and in Belgium and Luxemburg, the Saar, and even France, are working only about three days a week.

In Great Britain, as in France, the railroad companies report heavy deficits for the past financial year, and car loadings at present are below last year's figures at even date.

In view of the fact that France has been one of the latest countries to feel the effects of trade depression, the present position of that country is of interest. The reduction in steel output already has been referred to. The foreign trade balance for the first two months of the year is reported to show a deficit of some two-and-a-half billion francs, or about $97,500,000. This does not take into account the invisible exports, but it is a well-known fact that the tourist trade, which constitutes an important part of the French foreign income, has been much reduced.

Unemployment in France is less spectacular than in neighboring countries. The workers' confederation, however, claims that the proportion of unemployment in the metal industries is 5 to 6 per cent, equivalent to 65,000 to 80,000 workers. There are normally in France from 1,500,000 to 3,000,000 foreign workers. At present the number of foreigners employed is being reduced and expiring contracts are renewed only in special cases. It will thus be seen that French industries are no longer enjoying the prosperity that marked 1928-30, and it is generally agreed that most large iron and steel concerns are working at a loss.

On the other hand, these concerns have built up important reserves and it is worthy of note that as financial results for 1930 are published, and show considerable profits, those firms do not hesitate to pay substantial dividends. In view of the conservatism of the French iron and steel trade, this is taken as an indication that these industries feel that present difficulties are temporary. It is true, also, that France may still look forward to an active domestic market.

**Britain Has Own Problems**

Great Britain continues faced with difficulties of her own. A strike in the coal mines and railroads has just been averted, but a reduction of wages and readjustment of working hours have been accepted only under protest, and the outlook continues uncertain. The budget deficit this year is estimated at about £25,000,000. Increasing amounts of money are required for social services, and demands of the party in power are taxing the country to the straining point. The future depends largely on the coming budget at the end of April, and the country seems more inclined to favor a revenue tariff.

Germany also is in difficulties, and its intensive rationalization does not appear a cure for all ills. The news of a possible free trade arrangement with Austria has disturbed the rest of Europe. France and the little Entente countries view the event in its political aspects, while Great Britain is sensitive of its repercussion on British trade.

Reports from various parts of Europe show that everywhere trade conditions are unfavorable. While it is beginning to become apparent that better basic conditions will obtain before long, the beginning of the year has been marked by an increase of failures, and bankruptcies and further difficulties are to be expected in that direction.

## European Conditions Are Classed as Poor to Fair

*BUSINESS conditions in Europe are classified by Mr. Delport, on the basis of reports from the various countries, as poor and poor to fair.*

*Countries classed as poor to fair, with a leaning toward fair are: Sweden, France, Switzerland, Czecho-Slovakia.*

*Those classed as poor to fair with accent on the poor, are: Finland, Italy and Bulgaria.*

*Those unreservedly poor are: Germany, Great Britain, Portugal, Hungary, Albania, Turkey, Russia, Austria.*

*The remainder are classed simply as poor to fair, without distinction, including the following: Norway, Esthonia, Latvia, Lithuania, Poland, Denmark, Holland, Belgium, Luxemburg, Spain, Rumania, Yugo-Slavia, Greece.*

# The Business Week In Washington

ATTORNEY GENERAL MITCHELL stated last week that he has no authority to declare a moratorium on the antitrust laws because business is bad but he admitted that the bad business has presented "grave difficulties" in enforcing the laws.

□ □ □

Industrial employment has increased considerably since January, according to the department of labor. There was a payroll increase of $13,500,000 in March compared with January and 152,000 more persons were employed in March than in January in manufacturing establishments alone.

□ □ □

Federal trade commission never has held standardization of commodities by the members of an industry to be violative of any statutes it has the duty of enforcing, C. W. Hunt, chairman, states.

□ □ □

There is a trend in the United States, according to Ethelbert Stewart, commissioner of labor statistics, toward basing wages on output. This would offer the fairest way of remuneration, he states, but in actual practice it does not work out that way.

□ □ □

That business is actually on the upgrade is the statement made to President Hoover by Roger Babson, statistical expert. He told the President that "in almost every line of industry there are some one or two concerns which have turned the corner and have shown an increase in earnings in March over February and, what is more important, an increase this March over March of last year."

□ □ □

Interstate commerce commission has announced that on Feb. 15 the railroads had a payroll of 1,316,435 employes, a decline of 14.76 per cent from last year and 18.04 per cent below Feb. 15, 1929.

## Sheet Sales for March Show 26 Per Cent Gain

An increase of 26 per cent is reported in the daily average of sheet sales in March compared with February by the National Association of Flat Rolled Steel Manufacturers, Cleveland. The gain in production and also in shipments was 5 per cent. Total sales for the month were 236,310 net tons; production, 224,322 tons; shipments, 208,207 tons.

Unfilled orders as of April 1 were 383,280 net tons, against 343,439 tons March 1. Approximate finished stock on hand awaiting shipment at the close of March was 100,581 tons, and in stock, unsold, 89,334 tons.

Total sheet capacity in the United States for March was approximately 543,400 net tons, and the capacity on which the association's figures are based was 367,350 tons.

## Foundry Equipment Orders Make 300 Per Cent Gain

At the highest in 13 months, foundry equipment orders' index rose more than 300 per cent in March over February. The index, as reported to the Foundry Equipment Manufacturers' association, for March was 174.4, or the highest since February, 1930. Shipments also gained. The rise in unfilled orders from February's 93.5 to March's 314.6 was comparable to that in the order index. Comparisons follow:

| | 1931 | 1930 | 1929 | 1928 |
|---|---|---|---|---|
| Jan. | 65.3 | 160.1 | 180.5 | 132.7 |
| Feb. | 54.7 | 196.4 | 197.0 | 123.6 |
| Mar. | 174.4 | 164.1 | 209.4 | 138.6 |
| Apr. | ..... | 122.8 | 172.6 | 107.7 |
| May | ..... | 92.7 | 177.7 | 335.6 |
| June | ..... | 102.1 | 177.3 | 149.1 |
| July | ..... | 90.6 | 219.3 | 94.8 |
| Aug. | ..... | 85.2 | 229.5 | 278.0 |
| Sept. | ..... | 91.0 | 216.3 | 170.0 |
| Oct. | ..... | 50.0 | 245.3 | 185.0 |
| Nov. | ..... | 45.3 | 128.6 | 197.8 |
| Dec. | ..... | 59.8 | 208.0 | 166.5 |

Base: Average monthly shipments for 1922-23-24 taken as 100.

## 152-Pound Rail To Be Rolled for Pennsylvania

Steel rails of 152-pound section contrasting with the 130-pound section now commonly used, will be laid shortly by the Pennsylvania railroad. Bethlehem Steel Corp. and Carnegie Steel Co. are ready to roll the first rails of this section during May.

The new rail section is designed for 100,000-pound axle loads at speeds of 100 miles per hour, compared with 80,000 pounds at 80 miles per hour, the present maximum.

The 130-pound rail has been redesigned, according to John F. Deasy, vice president of the railroad, and by addition of one pound per yard a gain of 22 per cent in strength has been obtained. The new section will give a saving in track maintenance and increased safety.

## To Reward Scrap Activity

The Institute of Scrap Iron and Steel Inc., New York, has established an annual award—a cup and a certificate—donated by Benjamin Schwartz, director general, to the chapter which annually carries on the most constructive program of work. The award will be made on the following basis: Co-operation, 20 points; achievement, 20 points; payment of dues to national organizations, 20 points; attendance, 15 points; membership, 15 points; chapter program, 10 points.

# Financial News of Steel Industry

GENERAL ELECTRIC CO., Schenectady, N. Y., reports profit of $10,844,334 for first quarter, against $14,398,790 for the same three months last year, which is equivalent to 38 cents a share in 1931 and 50 cents in 1930.

□ □ □

Budd Wheel Co., Philadelphia, earned $214,079 in the first quarter of 1931, or approximately 20 cents per share. This compares with $413,613 for the same period last year.

□ □ □

National Steel Corp., Pittsburgh, earned approximately $1,926,000 in the first quarter after all charges, equivalent to 89 cents a share on the common stock.

□ □ □

Edward G. Budd Mfg. Co., Philadelphia, in the first quarter earned $28,020, compared with $20,691 for all year 1930.

□ □ □

Virginia Iron, Coal & Coke Co., Roanoke, Va., reports net profit of $66,252 for first quarter of 1931.

□ □ □

Otis Steel Co., Cleveland, had net of $20,615 in first quarter, compared with $634,050 for the like period of 1930.

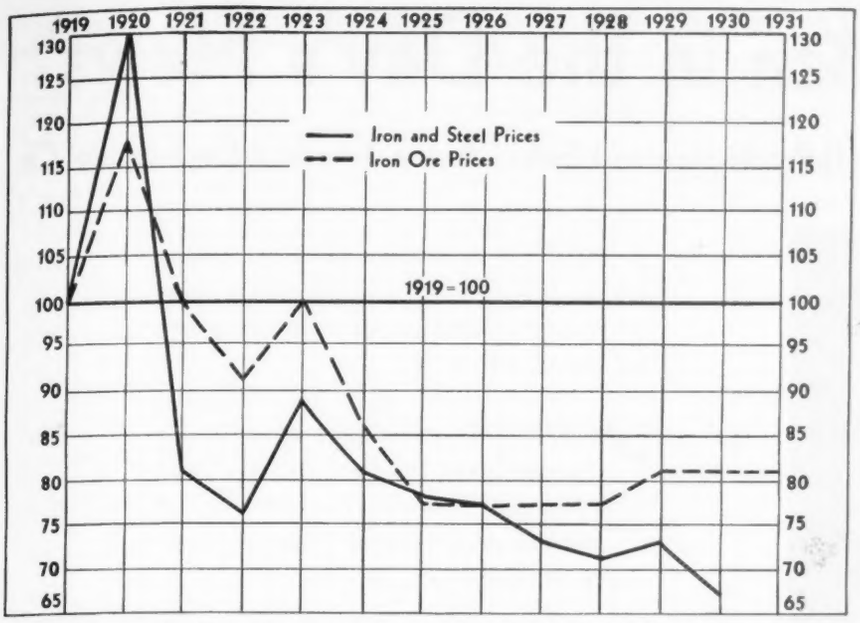
## Castings Capacity Falls

Steel castings capacity of the United States as of Dec. 31, 1930, was 2,083,085 gross tons, compared with 2,097,995 tons on Dec. 31, 1929, according to the American Iron and Steel institute, New York.

Two weeks ago steel ingot capacity was given as 66,897,096 tons for Dec. 31, 1930, against 63,067,546 tons the year preceding.

## Die Companies Merge

The Pine Tree Die Co., Auburn, Me., has absorbed the Warren S. Longmore Die Co., of Stoneham, Mass. The Pine Tree company expects to expand at the Auburn plant.




STEEL'S *iron and steel price composite compared with Mesabi nonbessemer ore. Ore prices have become more stabilized and have exerted a similar influence over iron and steel since* 1925, *covering the period when steel companies acquired larger holdings in the Lake Superior district*

# Ore Prices Re-established; Long Trend Toward Stability

LEADING producers of Lake Superior iron ore announce prices have been established for the season on the same basis as prevailed in 1930 and 1929. These prices are being written into long-term contracts on which the bulk of the tonnage mined by the independent producers is sold.

The principal companies say there is no doubt about the re-establishment of these figures though the market does not give the appearance of the strength that was anticipated earlier in the year. The only business so far transacted in the open market is that of the Ford Motor Co. No inquiries now are pending.

Prices in long-term contracts generally are based on those established by open market sales. The volume of such sales appears to be diminishing each year, as ten years ago it was about 5,000,000 tons, and in recent years, less than 1,000,000 tons.

All producers submitted last year's open market prices on the Ford company's inquiry for 290,000 tons. The company finally closed last week for 190,000 to 200,000 tons, dividing orders among three producers. It is reported that last year's open market prices applied on these sales.

While ore prices have been practically stationary for three years the trend is toward strength, rather than the reverse, as the amount of ore available is constantly being reduced. The large iron and steel producers who hold most of the ore are less inclined to sacrifice it, and more determined to hold it for the future.

In the accompanying chart is presented a comparison of the yearly averages of STEEL'S weekly price composite of 14 leading iron and steel products, and the open market prices of Lake Superior iron ore. This shows that ore prices generally followed the trend of iron and steel, up to the year 1925, when ownership of ore mines became more centralized in the hands of leading iron and steel producers. The trend since then indicates that ore prices have become more stabilized and have exerted a similar influence on iron and steel.

The current market is quieter than at any other time in the past ten years. Total shipments for the season are estimated at 40,000,000 to 41,000,000 tons, compared with 47,184,869 tons in 1930 and 66,163,637 tons in 1929.

The amount of ore on hand at lower lake ports and furnaces April 1 was 6,638,783 tons more than last year at the same time, as shown by the following report from the Lake Superior Iron Ore Association:

| | Tons |
|---|---|
| Ore consumed in February .... | 2,368,243 |
| Ore consumed in March..... | 2,835,439 |
| Increase in March ..... | 467,196 |
| Ore consumed in March, 1930 | 4,628,438 |
| Ore on hand at furnaces April 1, 1931 ..... | 25,750,778 |
| Ore on Lake Erie docks April 1, 1931 ..... | 5,765,281 |
| Total at furnaces and Lake Erie docks April 1, 1931..... | 31,516,059 |
| Total April 1, 1930..... | 24,877,276 |

## Iron Ore Prices at Date of Buying Movement

| Season | Date buying movement | Old range Bessemer Ton | Old range Bessemer Cents per unit | Old range non Bessemer Ton | Old range non Bessemer Cents per unit | Mesabi Bessemer Ton | Mesabi Bessemer Cents per unit | Mesabi non Bessemer Ton | Mesabi non Bessemer Cents per unit | Iron prices, Valley Bessemer | Iron prices, Valley No. 2 Foundry |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1931 | April 15, 1931 | $4.80 | 9.320 | $4.65 | 9.029 | $4.65 | 9.029 | $4.50 | 8.738 | $17.00 | $17.00 |
| 1930 | April 1, 1930 | 4.80 | 9.320 | 4.65 | 9.029 | 4.65 | 9.029 | 4.50 | 8.738 | 19.00 | 18.50 |
| 1929 | March 22, 1929 | 4.80 | 9.320 | 4.65 | 9.029 | 4.65 | 9.029 | 4.50 | 8.738 | 18.50 | 18.00 |
| 1928 | April 16, 1928 | 4.55 | 8.835 | 4.40 | 8.544 | 4.40 | 8.544 | 4.25 | 8.252 | 17.50 | 17.25 |
| 1927 | April 8, 1927 | 4.55 | 8.835 | 4.40 | 8.544 | 4.40 | 8.544 | 4.25 | 8.252 | 19.50 | 18.50 |
| 1926 | March 17, 1926 | 4.55 | 8.835 | 4.40 | 8.544 | 4.40 | 8.544 | 4.25 | 8.252 | 21.00 | 20.50 |
| 1925 | April 4, 1925 | 4.55 | 8.835 | 4.40 | 8.544 | 4.40 | 8.544 | 4.25 | 8.252 | 22.00 | 21.00 |
| 1924 | March 24, 1924 | 5.65 | 11.364 | 4.90 | 10.680 | 5.40 | 10.909 | 4.75 | 10.388 | 23.00 | 22.00 |
| 1923 | March 24, 1923 | 6.45 | 12.818 | 5.70 | 12.233 | 6.20 | 12.364 | 5.55 | 11.942 | 31.00 | 31.00 |
| 1922 | June 9, 1922 | 5.95 | 11.909 | 5.20 | 11.262 | 5.70 | 11.454 | 5.05 | 10.971 | 25.00 | 24.00 |
| 1921 | June 16, 1921 | 6.45 | 12.818 | 5.70 | 12.233 | 6.20 | 12.364 | 5.55 | 11.942 | 23.00 | 22.50 |
| 1920 | Feb. 2, 1920 | 7.45 | 14.636 | 6.70 | 14.175 | 7.20 | 14.182 | 6.55 | 13.883 | 41.00 | 40.00 |
| 1919 | April 28, 1919 | 6.45 | 12.818 | 5.70 | 12.233 | 6.20 | 12.364 | 5.55 | 11.942 | 27.95 | 26.75 |
| *1918 | Oct. 1, 1918 | 6.65 | 13.182 | 5.90 | 12.621 | 6.40 | 12.727 | 5.75 | 12.330 | 35.20 | 34.00 |
| | July 1, 1918 | 6.40 | 12.727 | 5.65 | 12.136 | 6.15 | 12.273 | 5.50 | 11.845 | 35.20 | 33.00 |
| | April 1, 1918 | 5.95 | 11.909 | 5.20 | 11.262 | 5.70 | 11.454 | 5.05 | 10.971 | 35.20 | 33.00 |
| 1917 | Nov. 22, 1916 | 5.95 | 11.909 | 5.20 | 11.262 | 5.70 | 11.454 | 5.05 | 10.971 | 30.00 | 26.00 |
| 1916 | Dec. 7, 1915 | 4.45 | 9.181 | 3.70 | 8.349 | 4.20 | 8.727 | 3.55 | 8.058 | 18.50 | 18.00 |
| 1915 | April 19, 1915 | 3.75 | 7.909 | 3.00 | 6.990 | 3.45 | 7.455 | 2.80 | 6.699 | 13.60 | 12.75 |
| 1914 | May 1, 1914 | 3.75 | 7.909 | 3.00 | 6.990 | 3.50 | 7.445 | 2.85 | 6.699 | 14.00 | 13.25 |

*Prices for 1918 established by government. All iron ore prices, delivered lower lake ports.

# Industrial Men in the Day's News

## Lewis A. Way, Manager of Roll Production and Sales, Aetna-Standard Engineering Co.

IDENTIFIED with steel mill roll production and sales for the past thirty years, he brings a wide experience to his new sphere of effort.

PROMINENT companies such as Duquesne Steel Foundry, Lewis Foundry & Machine, Mesta Machine, Sharon Foundry and Pittsburgh Steel Foundry were his previous connections.

HIS hobby of collecting postage stamps affords him much pleasure, as do his technical society and club memberships.

THIRTY years' experience in steel foundry and steel roll manufacture as well as sales lie behind Lewis A. Way, who as noted in STEEL of March 19, 1931, was recently appointed manager of production and sales in the roll department of the Ellwood City, Pa., plant of Aetna-Standard Engineering Co., Youngstown and Warren, O.

In this 30 years he spent two periods with Duquesne Steel Foundry, one each with Lewis Foundry & Machine, Mesta Machine, Sharon Foundry, and Pittsburgh Steel Foundry companies. When he resigned in November, 1917, from Duquesne Steel Foundry Co., Coraopolis, Pa., he had completed about 16 years in that organization, rising from a minor position to superintendent. That same month he became assistant to the president of Lewis Foundry & Machine Co., Pittsburgh. He was promoted to be works manager and resigned early in 1921 to return to the Duquesne Steel Foundry Co., becoming assistant to the president in charge of sales. A year later he was elected second vice president and continued in charge of the sales department. He left in 1923 to join the roll sales department of Mesta Machine Co., Pittsburgh, and West Homestead, Pa., where he remained for about three years.

In September, 1926, Mr. Way took over the Sharon Foundry Co., Wheatland, Pa., and occupied the president's chair. After another 3-year period Pittsburgh Steel Foundry Corp., Glassport, Pa., acquired Sharon Foundry Co., in August, 1929. He remained with the organization and shortly after was elected third vice president. He continued in that capacity until Feb. 28, 1931, and on March 1 started his affiliation with Aetna-Standard Engineering Co.

Mr. Way is a member of the Steel Founders Society of America Inc., a trustee of the Pittsburgh Foundrymen's association, and maintains memberships in Keystone Athletic, Youngstown, Sharon Country and Montour Country clubs. His hobby makes him a philatelist and he takes much enjoyment out of his postage stamp collections.

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EDWARD K. BAUER, identified with Carnegie Steel Co., Pittsburgh, for many years, latterly as assistant to the late James B. Bonner, has been appointed Philadelphia sales manager to succeed Mr. Bonner, who died April 9.

Harry F. Knapp has been appointed Washington district sales manager. He also was an assistant to Mr. Bonner and had been with the Carnegie company for many years.

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Alexander Taylor has resigned as vice president and secretary of the Lake Superior Corp., Montreal, Que., and as secretary and director of the Algoma Steel Co. Ltd. and of the Algoma Central Railway Co. Mr. Taylor has been an executive of the Lake Superior Corp. for 20 years and will continue to devote some time to the affairs of the organization in London.

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Thomas A. Wilson, since 1926 vice president in charge of the Pittsburgh office of Rogers Brown & Crocker Bros. Inc., Cincinnati, has become identified with Kerchner, Marshall & Co., Pittsburgh, dealer in pig iron, alloys, coal, coke and sand. Mr. Wilson began with Rogers Brown & Co.'s Pittsburgh office about 35 years ago and was appointed Pittsburgh district manager in 1914. He continued in that office when the company merged with Crocker Bros. in 1925. The Pittsburgh office of Rogers Brown & Crocker Bros. Inc. has been closed, having been consolidated with the Cleveland office.

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C. W. Given, formerly identified with the laboratory staff of the Ferro Corp., Cleveland, has been appointed service engineer for the Michigan Steel Corp., Detroit.

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R. E. J. Summers resigned March 31 as vice president and contract manager of the H. K. Ferguson Co., Cleveland, engineer and builder, to become president of Summers Engineers & Constructors Inc., a newly-organized company with offices in the Terminal Tower building, Cleve-

land, and in the Graybar building, New York. Mr. Summers had been with the Ferguson organization since 1919.

Charles H. Fowler, who assisted Mr. Summers in his former connection, will manage the Cleveland office of the new Summers organization.

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H. Lee Reynolds, Oliver building, Pittsburgh, has been appointed sales representative in the Pittsburgh territory for Roller Bearing Co. of America, Trenton, N. J.

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Richmond Nicholas resigned April 1 as vice president of Hickman, Williams & Co. Inc., Chicago, and has gone to reside in California because of ill health. He was resident manager of Hickman, Williams & Co. at Chicago for many years, and was made vice president in 1918.

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J. L. Hilton has resigned as sales manager of the fabricating department of Dalzell Bros. Co., Youngstown, O. He will engage in his own business at Warren, O. Mr. Hilton formerly was in the sales department of the Commercial Shearing & Stamping Co., Youngstown.

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J. E. Broderick, formerly in the sales department of Aetna-Standard Engineering Co., Youngstown, O., now is sales manager for Youngstown Steel Sales, the selling division of the Fitzsimmons Co., Youngstown, manufacturer of cold-finished steel bars and related products.

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Oscar Schwegel has been appointed superintendent of Dayton Casting Co., Dayton, O., to succeed the late Ernest Ackerman.

John J. Hockey, formerly president of Superior Casting Co., has also become affiliated with Dayton Casting Co., as traveling salesman.

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William T. Kilborn, formerly vice president and general manager of sales of Graham Bolt & Nut Co., Pittsburgh, has been elected vice president in charge of sales of Hammond Bolt & Nut Corp., Hammond, Ind. His headquarters will be at the general offices in the Peoples Gas building, Chicago.

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Samuel S. Buckley, recently in charge of ingot mold sales for Straight Line Engine Co., Syracuse, N. Y., has resigned to become affiliated with the sales department of Vulcan Mold & Iron Co., Latrobe, Pa. Mr. Buckley at one time was president of the Onondaga Steel Co., Syracuse.

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Ernst C. Heyde, formerly foundry superintendent for Skalla & Co., Buenos Aires, has returned to the United States and has charge of the pattern shop and foundry equipment of California Foundry Co., Los Angeles. Mr. Heyde from 1922 to 1929 had charge of pattern shop and equipment of Pacific Sanitary Mfg. Co., San Francisco, later known as Standard Sanitary Co.

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D. H. Locke, president of Locke Pattern Works, Detroit, subsidiary of American Radiator & Standard Sanitary Corp., has been made vice president and general manager of manufacturing for American Radiator Co., New York, to succeed A. E. Geddes, resigned.

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Thomas O. Schrader Jr., 716 Investment building, Pittsburgh, has been appointed district sales agent of the Erie City Iron Works, Erie, Pa. He has had factory training and also has had experience in the design of pulverized coal equipment and boilers.

A. H. Kennedy has been appointed district sales agent for Duluth territory with headquarters at 316 Blencoe building, Duluth.

C. W. Kennecott, 800 Santa Fe street, Los Angeles, has been appointed subagent for the extended San Francisco territory.

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Donald M. Eddy, formerly vice president and Buffalo district sales manager of Hanna Furnace Corp., subsidiary of National Steel Corp., has been elected president of Hanna Furnace Corp. of Delaware and Hanna Furnace Corp. of New York, and will make his headquarters at Buffalo. He succeeds Charles A. Collins, whose death was noted in STEEL of April 12. Mr. Eddy at one time was director of purchases for M. A. Hanna Co., at Cleveland, and later was in charge of sales of Hanna Furnace Corp. at Buffalo, which operates four merchant furnaces. William Kerber has been appointed Buffalo district sales manager.

E. Kay Ford has been elected vice president in charge of sales of Hanna Furnace Corp. of Delaware, which operates two blast furnaces at Detroit. His headquarters will be at Detroit.

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A. W. Lauder has been promoted from general sales manager to vice president in charge of sales of Lyon Metal Products Co., Aurora, Ill.

J. S. Sprout, manager of steel furniture division, has been made general sales manager.

E. D. Power, manager of the automotive division, has been promoted to director of research, investigating and surveying new markets and products.

F. S. Waters, president and general manager of the company, will as member of the advisory board, assume general supervisory capacity.

S. S. French, vice president, has also been made assistant general manager to relieve Mr. Waters of burdensome details.

B. L. Waters continues as secretary and will serve also in an advisory capacity as member of the board.

# Obituaries

CLIFFORD E. PIERCE, 50 president and one of the founders of Betz-Pierce Iron & Steel Co., Cleveland, iron and steel jobber, died April 20 at Lakeside hospital, Cleveland. With A. B. Betz he formed the company in 1911, both having been previously connected with Bassett-Presley Co., Cleveland. Mr. Pierce, formerly vice president and treasurer, became president in 1923, succeeding Mr. Betz, whose interest he purchased. On June 5, 1925, he also was elected president of Massillon Steel Castings Co., Massillon, O., in succession to Emmett H. Birney, resigned. He had been on the directorate of the Massillon company for the preceding three years and had served two years as vice president. He also was a director of Security Savings & Loan Co., Cleveland, and since Feb. 5, 1931 had been a director of the Van Dorn Iron Works Co., Cleveland.

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Walter Norris, secretary-treasurer, Sarnia Bridge Co. Ltd., Sarnia, Ont., died recently.

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George E. Van Hagen Jr., of Barrington, Ill., vice president of Standard Forgings Co., Chicago, died recently in Miami, Fla.

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Samuel C. Kershaw, 59, sales representative of Columbus Bolt Works, Columbus, O., died April 14. He had been with the company 39 years.

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Henry A. Gray, 79, who between 1886 and 1897 served as secretary and treasurer of Illinois Steel Co., Chicago, died April 20 at Lake Bluff, Ill. From 1897 until his retirement in 1921 he was comptroller of the Northern Pacific railroad. He was the father of L. J. Gray, assistant to the president of American Steel & Wire Co.

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Andrew Olin, 68, superintendent of the splice mill of the Joliet works, Illinois Steel Co., Chicago, died April 1. Born in Lund, Sweden, he located in this country at the age of 17. He had been with the Illinois company for 45 years and served as splice mill superintendent for 35 years.

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Joseph B. Terbell, 68 chairman of the board of American Brake Shoe & Foundry Co., New York, died there April 15. Born at Corning, N. Y., he was graduated from Hamilton college in 1884 and immediately became identified with Fall Brook railroad, now a part of the New York Central system. An officer of this road for 13 years, he became president in 1897 of Corning Brake Shoe Co., Corning, N. Y., and when his

(*Concluded on Page* 69)

# Here and There in Industry

ALLIS-CHALMERS MFG. CO., Milwaukee, will increase its activities in the farm implement and tractor field through acquisition of the manufacturing properties and business of the Advance-Rumely Corp., LaPorte, Ind., and branch houses throughout the United States, negotiations for which are to be completed by about May 1. Payment will be made in stock of the Allis-Chalmers company, although details of the purchase are not completed. Advance-Rumely company for more than 50 years has manufactured various types of farm machinery, specializing largely in recent years in combines and threshing machines. Allis-Chalmers has become interested extensively in production of farm and crawler tractors and recently purchased the plant of the LaCrosse Plow Co., LaCrosse, Wis.

News of the purchase indicates that Allis-Chalmers will extend its farm equipment products during the coming year, since the purchase will provide the company with a wide distribution system in the United States and Canada.

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Newport News Shipbuilding & Dry Dock Co., Newport News, Va., is moving its New York office from 233 Broadway to 90 Broad street, effective April 25.

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Canadian Atlas Steel Co., Welland, Ont., is installing an electric melting furnace for production of tool steel ingots, which previously have been imported.

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Perry Buxton Doane Co. Inc., dealer in iron and steel scrap, has moved its New York offices to the Chrysler building, Lexington avenue and Forty-second streets, from 50 Church street.

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E. D. Giberson & Co. is moving its executive and New York sales offices from 40 Rector street to 90 West street, New York. General offices and warehouses continue in the Bush Terminal building, Brooklyn, N. Y.

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McInnes Steel Co., Corry, Pa., has appointed sales representatives as follows: Commercial Sales, 3710 Liberty street, Pittsburgh; M. F. Muir, 9817 McQuade avenue, Detroit; Superior Products Co., Thoms building, Cincinnati.

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Sheet Piling Inc. and Steel Union Co. Inc., American representatives of the United Steel Works Corp. of Germany, have moved their New York offices from 17 John street to the New York Evening Post building, 75 West street.

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United States Steel Corp. has announced that it has arranged to sell the Gary Heat, Light & Water Co., Gary, Ind., to the Midland United Co. The Gary company has $1,250,000 of $100 par capital stock, all of which is held by the Steel corporation.

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Detroit Seamless Steel Tubes Co., Detroit, has re-elected directors and officers for the coming year. C. H. Hobbs is president and general manager. His annual report showed 1930 was profitable and each month in 1931 has shown an increase over its predecessor.

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Lorain Steel Co., subsidiary of the United States Steel Corp., will move its offices from 71 Broadway to the Empire State building, Fifth avenue and Thirty-fourth street. As recently noted, the American Steel & Wire Co., also a Steel corporation subsidiary, will have offices in that building.

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Foote Bros. Gear & Machine Co., Chicago, has moved its general offices from 111 North Canal street to 215 North Curtis street. The move accomplishes consolidation and better co-operation of the general offices and manufacturing departments.

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Shepard Niles Crane & Hoist Corp., Montour Falls, N. Y., has opened direct factory sales offices at 1433 East Twelfth street, Cleveland, and Grant building, Pittsburgh. Harry A. Baugh is district sales manager at Cleveland. Overhead electric traveling cranes and hoists will be handled through these offices.

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General Engineering & Mfg. Co., J. Schreiber president, St. Louis, has acquired the shaper manufacturing business of R. A. Kelly Co., Xenia, O. Patterns and some equipment will be moved to St. Louis and added to facilities of the General Engineering Co., under whose name these machines will be built in future.

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Eaton Axle & Spring Co., Cleveland, is to absorb the Reliance Mfg. Co., Massillon, O., manufacture of lock nuts and lock washers, stockholders of the latter having voted in favor of the merger. Five shares of Eaton stock will be exchanged for four of the Reliance company. Combined resources will be close to $20,000,000.

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Liberty Foundry Co., St. Louis, has purchased at auction sale the bankrupt stock, including fixtures and machinery, of the Crescent Foundry Co. The purchaser will use all of the materials desired, and resell the remainder. The building was not included in the sale. Crescent Foundry Co. had been in business here for about twelve years. Its president was Lawrence O'Niell, its founder.

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Portable Machine Co., Clifton, N. J., manufacturer of conveyors for the past 12 years, has been sold to the Farquhar Co. Ltd., York, Pa., according to Jere L. Wentz, president of the former. The Clifton plant will continue in operation, with about 200 men employed. Mr. Wentz will become a director of the York firm and his brother, W. W. Wentz, will assume charge of the Clifton plant.

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Alloy Metal Wire Co. Inc., Moore, Pa., has appointed W. W. Wilson, 2-219 General Motors building, Detroit, and Metal Parts & Equipment Inc., 4950 Washington boulevard, Chicago, as agents to handle its lines of pure nickel and nickel alloys for electrical resistance, stainless steel cold-rolled strip and cold drawn rod and wire in their respective territories.

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Semet-Solvay Engineering Corp., 40 Rector street, New York, has acquired patents and manufacturing rights relating to the Koller gas producer and mechanical grate and the industrial gas equipment formerly manufactured and sold by the Gas Research Co. and the Smith Gas Engineering Co., Dayton, O. Both lines will be further developed and marketed with present Semet-Solvay equipment.

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Lake Erie Engineering Corp., of 268 Perry street, Buffalo, has secured a 10-acre site for a new plant in the heart of the new Niagara Frontier industrial center, at Woodward and Riverview Avenues, Tonawanda. The initial unit will be 115 x 500 feet, main bay 60 x 500 feet, which with expanded machine equipment will be devoted to the manufacture of their well known line of hydraulic press equipment, plate working machinery, process and chemical equipment, in various alloys. Contracts for new buildings call for completion July 1. R. E. Dillon, vice-president, is in charge. The present site has been acquired by the New York Central railroad for a food terminal.

# MIRRORS of MOTORDOM

*DETROIT*

A TWO-month shutdown by the Ford Motor Co. at Fordson, beginning early in the summer, looms ominously on the horizon of the automobile industry.

Ford, it will be recalled, scheduled 120,000 cars for March but produced only 99,000. For April 120,000 cars again were scheduled, but only an unexpected pickup in the final ten days will put actual production above 90,000.

For May the schedule has been dropped to 90,000, accompanied by a further scaling-down in specifications to material suppliers and releases to parts makers.

Over the past few months some manufacturing divisions of the Ford organization have been outrunning actual assembly of cars, and at Fordson and the numerous branch assembly plants it is estimated there are parts for 200,000 Model A's.

While actual manufacturing operations, principally at Detroit, thus may go down for two months, assembly at the branch plants will be continued, it is believed, and this surplus of parts worked off.

## Shutdown Indicates Change?

Inevitably this report of a two-month shutdown at Fordson has injected new life into the widely-held belief that a model change by Ford impends. It would not be illogical for Ford to utilize this 60-day period for whatever changeovers would be necessary in the equipment at Fordson.

Majority opinion still is that Ford's next change will be to a low-priced eight. Because Chevrolet has almost pre-empted the low-priced six-cylinder field, it is believed that Ford would skip this class and try to dominate the Chevrolet six with a Ford eight, as Chevrolet is now trying to do to the Ford four.

Nevertheless, there are many in Detroit who believe Ford has a six ready, and some who look for a revision of the four. But whatever the change that may be in prospect, it is certain that the Ford engineers have not been napping and there will be no repetition of the gap between the passing of Model T and the introduction of Model A.

## Chevrolet Moving Output

While Ford has been assembling about 7200 cars daily, 3 days a week, Chevrolet has been assembling about 3500 daily, 5 days a week. Since early in the year Ford output has slightly topped that of Chevrolet.

The surplus of Ford parts and the evidence of new car registrations, however, indicates that Chevrolet has at least equalled Ford retail sales if it has not actually surpassed them. The Chevrolet policy has been to synchronize factory assembly with retail delivery.

There is nothing to indicate that Chevrolet will slow down and its pace of about 80,000 units monthly appears "set" for the time being. It may be that the line of Ford production is at this time falling slightly below that of Chevrolet.

At the Fisher Body division in Cleveland devoted to Chevrolet closed bodies 80,000 units have been scheduled for this month. The forge, spring, gear and axle divisions at Detroit are now operating 5 days and 5 nights each week, an increase of a day and a night.

The Chevrolet spring plant is making as high as 20,000 springs in 24 hours and expects to produce 400,000 this month. The Chevrolet bumper plant, adjacent to the forge and spring division at Detroit, is scheduled to begin operations May 1. This, it is said, will conclude the Chevrolet program in expanding its parts capacity.

In January it was forecast in this department that Chevrolet would adopt the syncro-mesh transmission before 1932. Indications are now that the changeover will come about July 1.

A free-wheeling transmission for Fords, but lacking the feature of clutchless gear shifting, is already on the markets, and the offset to the new Chevrolet transmission may be the adoption of inbuilt free-wheeling by Ford.

This prospective two-month shutdown by Ford has resulted in considerable revision of the outlook for the automobile industry for the late spring and early summer. It now appears that April production will approximate 320,000 units, compared with the estimate of 280,000 for March.

Continued assembly at Ford branches will alleviate the production situation somewhat, but hopes for a gain in May over April appear slim. A good many observers at Detroit now look for a slide continuing into the early fall, but believe a reasonably good fall is in prospect.

## Other Producers Unchanged

Production schedules of most automobile manufacturers vary little from a fortnight ago.

Buick continues at 615 to 620 a day, 5 days a week at Flint. Assemblies have been steady over the past four weeks.

Studebaker makes 300 cars daily, 5 days a week, and though production is not at capacity, several special paint jobs have been known to be held up for five to six weeks.

Graham is bringing out a new 6-

(*Concluded on Page* 62)

# EDITORIAL

## Are You Backing Your Trade Association?

FOR many years the trade organization has been an important and highly respected American institution. In a country where cartels are not permitted and where monopolistic activities are viewed with suspicion, the trade association has provided industry with the machinery for legitimate co-operation. Had it not been for the presence of these trade bodies, business today doubtless would be saddled with numerous federal and state regulatory devices.

Trade associations are responsible for much of the invaluable statistical information provided for the guidance of business.

Practically everything that has been accomplished in standardization in this country must be credited to the work of trade bodies. The 8 foot 4½-inch railroad track gage, universal use and exchange of railroad rolling stock, uniformity in electrical current, standard screw threads and hundreds of other mechanical details, and thousands of standardized and simplified specifications and codes all owe their existence to co-operation through trade groups.

Today the most potent force for the uplift of business ethics and for the advancement of fair trade practice is found in association activities. Continued emphasis by trade organizations on the importance of intelligent cost accounting has helped thousands of small and medium-sized companies to view cost systems from a sane perspective. Co-operatives have assisted individual companies to secure deserved adjustments in freight rates, desirable changes in legislation and many other services which would have been utterly impossible by individual action.

### Industries Gain Closer Contact with Public and Government Agencies

Without the opportunity for expression through associations, the majority of industries would be inarticulate. Pride in industry would be at lower ebb, constructive leadership would be made almost impossible and it would be extremely difficult to marshal harmonious action by the units of an industrial group.

The foregoing and many other unnamed benefits of the trade association movement represent assets to the nation which are incalculable. The American public profits to the extent of hundreds of millions of dollars annually from the results of association work. Federal and state governments benefit from the ability afforded by trade associations to deal with industries through groups rather than through individual contacts. Industry itself reaps a large award in the opportunity enjoyed by its units to attain many objectives through collective action which would be impossible through individual effort.

In view of these impressive results of co-operation, it is unbelievable that industry will ever consciously permit the trade association movement to slacken or to die out. Yet—strange as it may seem—trade bodies now are facing a supreme test, to which unfortunately many industrial executives are surprisingly indifferent.

### Withdrawal in Face of Difficulties Is Costly and Short-sighted Policy

Reduction of income and consequent shrinking of profits have frightened many business heads into the folly of curtailing or abandoning group activities. In certain industries support of trade associations has been withdrawn to the point where the continuance of valuable co-operative work is threatened seriously. Occasionally one finds a case where withdrawal has been forced by the acute condition of a company's finances, but in the majority of instances the suspension of support is due to the short-sighted policy of executives who think it is easier to cut off the trade association than to effect economies in other directions.

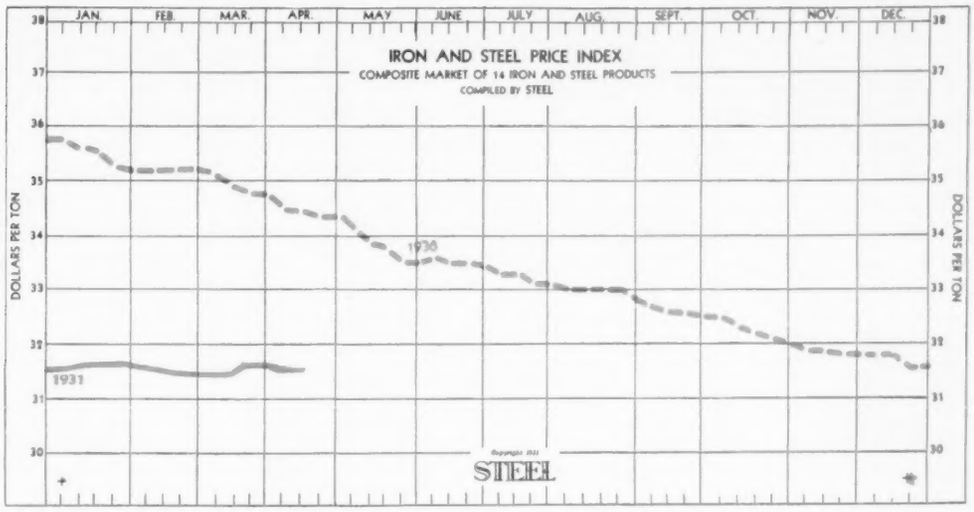
One successful company in 1930 was enabled through the initiative and enterprise of its trade association to revise its plan of distribution so as to take advantage of lower freight rates. The saving to the company in one year was several times its annual dues to the association. Yet early in 1931 this company withdrew.

In another industry, which has been noteworthy for co-operative achievements, many of the leading companies have practically deserted their association and are fighting among themselves like savages. They are in danger of wrecking a machine which has cost them millions of dollars to construct, but which has returned to them tens of millions in benefits!

The trade organization movement will not die. Any industry whose executives permit their association to pass out of existence now will have to rebuild it later at increased expense.

Now, when American business is in greater need of enlightened leadership than ever before, is not the time to slacken in association support. The trade association is a remarkably efficient machine, built laboriously for use in emergencies such as we face today.

# THE BUSINESS TREND




**Weekly Figures**

April 15....$31.59
April 8.... 31.67
April 1.... 31.67
March 25.. 31.71
March 18.. 31.71

**Monthly Averages**

March ....$31.66
Feb. ..... 31.65
Jan. ..... 31.71
Dec. ..... 31.74
Nov. ..... 31.92

## Indecision Accompanies Weak Sentiment, Mixed Factors

BUSINESS continues to bounce along without manifesting a definite trend upward or downward. The favorable factors probably outnumber the unfavorable ones but in influence they seem to be evenly matched.

Perhaps the worst feature of the present situation is the graveyard gossip which is being exchanged over luncheon tables. Much of this is prompted by the slight relapse in the steelworks operating rate and by the depressing aspect of last week's stock market activities. That the significance of the dip in steel ingot production is vastly overrated in many quarters is easily proved by a summary of recent events.

The steady advance in the steel ingot rate from 34 per cent Christmas week to 57 per cent in the third week of March was supported by a modest demand from all of the four principal steel consuming groups and from industry in general. But during this period the consumption of steel for railroad rolling stock and for pipe lines was diminishing. Until the third week of March the receding demand from these two important branches of industry was not reflected in the operating rate because it was offset by the slightly expanding requirements of other industries.

### Receding Steel Ingot Rate Merely Follows Usual Course of Spring Anticlimax

Since the third week of March the mills have had little support from car and pipe business. However, the volume of building construction and the rate of automobile production have been increasing. Hope for the maintenance or improvement of present schedules will rest heavily on these two industries until reinforcements from other directions appear.

Steelworks operations have been hovering around 50 per cent—a drop of six or seven points from the March peak. This recession cannot be termed alarming in itself—in fact it is a common annual occurrence in the spring. The steel ingot rate has declined in seven of the last 10 Aprils.

### Survey Reveals 1930 Earnings as Better Than in Year of Previous Depression

Much is heard of sagging or absent profits, which admittedly are in a sad state. However, a survey conducted by Ernst & Ernst shows that representative corporations in 20 important industries reported larger profits at the end of 1930 than at the end of 1921.

Current business barometers reveal certain elements of strength. March machine orders were up from February. The influence of Good Friday cut into freight car loadings, but the March level is being fairly well maintained. Petroleum output gained slightly. The rate of automobile output was stepped up by a small increment. Building construction in April has been climbing above the favorable March figures. Foreign trade picked up somewhat in March, exports gaining slightly and imports increasing considerably from previous low levels. A very sharp gain in foundry equipment orders was registered, March orders being the best since February, 1930. Independent producers of steel sheets reported substantial improvement in sales.

Prices still are irregular. Increases in certain commodities have been more than offset by declines. The weekly indicators of commodity prices slipped fractionally during the week. Weakness in steel sheets carried STEEL's composite down to $31.59.

# 1930 Steel Earnings 3.7 Per Cent; 6-Year Low

TWENTY leading producers of steel, representing 90 per cent of the country's ingot capacity, in 1930 earned 3.71 per cent on their capitalization, the lowest rate in the six years in which STEEL and its predecessor, *Iron Trade Review*, have analyzed the finances of the steel industry. On the page opposite is a supplement presenting full details of those 20 companies.

In 1929 a comparable group—but not exactly identical on account of subsequent mergers—earned 9.88 per cent on their capitalization, and in 1928, 6.55 per cent. For the six years from 1925 to 1930 inclusive, the steel industry has averaged an annual rate of 6.31 per cent on its invested capital.

As of Dec. 31, 1930, the capitalization of these 20 leading producers of steel, having a total ingot capacity of 60,225,495 gross tons out of a total of 66,897,096 tons for the entire country, reported a capitalization of $4,366,703,324. This capitalization compared with $4,003,442,316 for Dec. 31, 1929, excluding the National Steel Corp. and Republic Steel Corp., not then available for comparison.

On this total capitalization of $4,366,703,324, total earnings of $198,775,599 before dividends and bond interest were reported by 17 producers. Losses before dividends and bond interest, reported by three producers—Sharon Steel Hoop Co., Gulf States Steel Co. and Continental Steel Corp.—were not deducted from the earnings of the 17 in order to arrive at the rate of 3.71 per cent. In 1929, total earnings were $371,118,899 before dividends and bond interest.

Earnings per net ton of ingot capacity were $2.50 in 1930, compared with $6.42 in 1929. Capitalization per ton of ingot capacity was $65.57 in 1930, compared with $59.64 in 1929.

Relating earnings to capitalization, the Midvale Co., Philadelphia, was the most profitable producer in 1930, earning 8.49 per cent. Second was the Inland Steel Co., Chicago, with 8.15 per cent. Third was the Allegheny Steel Co., Pittsburgh, with a rating of 7.45 per cent, and fourth, the National Steel Corp., Pittsburgh, with 7.34 per cent.

Ranking producers according to size, the United States Steel Corp., New York, earned 5.11 per cent on its capitalization in 1930; the Bethlehem Steel Corp., Bethlehem, Pa., 4.63 per cent; Republic Steel Corp., Youngstown, O., 0.005 per cent; Jones & Laughlin Steel Corp., Pittsburgh, 4.65 per cent; Youngstown Sheet & Tube Co., Youngstown, 5.02 per cent; Inland Steel Co., Chicago, 8.15 per cent; and American Rolling Mill Co., Middletown, O., 1.79 per cent.

Rating producers on the basis of earnings per net ton of ingot capacity, the Midvale Co. was first in 1930, with $7.01. Then followed the Allegheny Steel Co. with $4.71, National Steel Corp. with $4.61, United States Steel Corp. with $4.11 and Crucible Steel Co. of America with $4.04.

The capitalization of the United States Steel Corp. per ton of ingot capacity in 1930 was $80.39, Bethlehem Steel Corp. $77.86, Republic Steel Corp. $57.39, Jones & Laughlin Steel Corp. $59.05, Youngstown Sheet & Tube Co. $68.23, Inland Steel Co. $47.81, American Rolling Mill Co. $60.39, National Steel Corp. $57.30, Wheeling Steel Corp. $70.52, and Otis Steel Co. $37.46.

Concerning common dividend rates, these were maintained by United States Steel Corp., Bethlehem Steel Corp., National Steel Corp., Youngstown Sheet & Tube Co., Pittsburgh Steel Co., and Midvale Co. Reductions were made by Jones & Laughlin Steel Corp., Allegheny Steel Co., Granite City Steel Co., Colorado Fuel & Iron Co. and Crucible Steel Co. of America. Inland Steel Co. increased its common dividend. All others omitted their dividends.

At the close of 1930 the total assets of these 20 leading producers were $5,865,211,497, current assets $1,225,241,179 and current liabilities $242,122,676. At the close of 1929 the total assets were $4,393,919,303, current assets $1,255,788,542 and current liabilities $250,286,672, the 1929 figures excluding the National Steel Corp. and Republic Steel Corp., not then available for purposes of comparison.

## Sixth Earnings Analysis Lowers Average to 6.31

*HEREWITH* STEEL *carries on the annual survey of earnings of the steel industry, inaugurated in* 1925 *by* IRON TRADE REVIEW.

*The survey for* 1930 *embraces* 20 *leading integrated producers, having a total steel ingot capacity of* 60,225,495 *or* 90 *per cent of the country's total capacity of* 66,897,096 *tons. These* 20 *producers averaged* 3.71 *per cent upon their investment in* 1930. *Seventeen reported a profit prior to dividends and interest on bonds; the losses of the remaining three are not deducted.*

*In* 1929 *the* 21 *producers in the survey reported a return of* 10.3 *per cent, but if an adjustment is made for the inclusion of the Republic Steel Corp. and the National Steel Corp. in* 1930 *and their omission in* 1929, *the average for the latter year is brought down to* 9.88 *per cent. A comparison for the six years in which this publication has performed this service to the steel industry follows:*

| Year | Per cent on capital |
|---|---|
| 1930 | 3.71 |
| 1929 | 9.88 |
| 1928 | 6.55 |
| 1927 | 5.22 |
| 1926 | 6.86 |
| 1925 | 5.61 |
| 6-yr. average | 6.31 |

*Acknowledgment of their co-operation is made to the comptrollers and other financial officers of the* 20 *companies surveyed.*

# Earnings, Capitalization, Assets and Capaciti

# Steel Companies in 1930

## (Compared with 1929)

| NAME OF COMPANY | No. Shares Common Stocks Outstanding | Common Stock | Preferred Stock | Funded Debt | Surplus | Total Capitalization | Net Earnings Before Dividends | Total Earnings Before Div. and Int. on Bonds | Earnings per Share | Per Cent Total Earnings on Capitalization | Earnings Per Ton Ingot Capacity | Rated Ingot Capacity Tons | C |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| United States Steel Corp..... | 8,687,435<br>*8,132,840<br>(par 100) | $868,743,500<br>*813,284,000 | $360,281,100<br>*360,281,100 | $101,820,111<br>*112,257,978 | $821,960,591<br>*745,748,242 | $2,152,805,302<br>*2,031,571,320 | $104,421,571<br>*197,592,060 | $110,061,667<br>*205,420,451 | $9.18<br>*20.13 | 5.11%<br>*10.11 | $4.11<br>* 8.05 | 26,778,000<br>*24,201,500 | |
| Bethlehem Steel Corp..... | 3,200,000<br>*3,200,000<br>(no par) | 315,900,000<br>*315,900,000 | 100,000,000<br>*100,000,000 | 117,528,600<br>*184,339,595 | 128,471,434<br>*134,565,632 | 670,365,659<br>*734,805,227 | 23,843,406<br>* 42,242,980 | 31,015,923<br>* 53,460,160 | 5.26<br>*15.50 | 4.63<br>* 7.28 | 3.60<br>* 6.68 | 8,610,000<br>* 8,000,000 | |
| Republic Steel Corp..... | 1,974,540<br>(no par) | 91,289,344 | 64,560,900 | 56,564,400 | 63,425,872 | 275,840,516 | 3,522,003(x) | 136,935 | (x) | .005 | .03 | 4,806,000 | |
| | * † | * † | * † | * † | * † | * † | * † | * † | * † | * † | * † | * † | |
| Jones & Laughlin Steel Corp..... | 576,320<br>*576,320<br>(par 100) | 57,632,000<br>* 58,715,100 | 58,713,900<br>* 57,632,000 | 10,852,000<br>* 12,656,000 | 74,749,352<br>* 61,219,464 | 201,947,252<br>*190,222,564 | 8,843,287<br>* 20,848,749 | 9,396,302<br>* 21,443,454 | 8.21<br>*29.04 | 4.65<br>*11.27 | 2.75<br>* 6.56 | 3,420,000<br>* 3,270,000 | |
| Youngstown Sheet & Tube Co... | 1,200,000<br>*1,000,000<br>(no par) | 75,451,090<br>* 75,199,715 | 15,000,000<br>* 15,000,000 | 70,500,000<br>* 73,500,000 | 51,912,591<br>*51,729,886 | 212,863,681<br>*215,429,601 | 7,036,133<br>* 21,564,174 | 10,695,455<br>* 25,208,314 | 5.17<br>*17.28 | 5.02<br>*11.71 | 3.42<br>* 9.29 | 3,120,000<br>* 2,717,000 | |
| Inland Steel Co..... | 1,200,000<br>*1,200,000<br>(no par) | 35,000,000<br>* 35,000,000 | None<br>* None | 28,000,000<br>* 30,000,000 | 32,605,097<br>* 30,906,130 | 95,605,097<br>* 95,906,130 | 6,498,967<br>* 11,712,374 | 7,792,717<br>* 13,042,124 | 5.41<br>* 9.76 | 8.15<br>*13.59 | 3.89<br>* 7.25 | 2,000,000<br>* 1,800,000 | |
| American Rolling Mill Co..... | 1,710,806<br>*1,200,999<br>(par 25) | 42,769,409<br>* 30,038,501 | 2,076,700<br>* 5,140,420 | 43,716,020<br>* 32,132,782 | 24,780,431<br>* 23,755,643 | 113,342,560<br>* 91,067,346 | 114,094<br>* 6,110,570 | 2,028,783<br>* 7,688,602 | .03<br>* 4.24 | 1.79<br>* 8.44 | 1.08<br>* 4.94 | 1,876,705<br>* 1,557,500 | |
| National Steel Corp..... | 2,149,734<br>(no par) | 53,743,350 | None | 10,206,257 | 50,657,061 | 104,400,411 | 8,415,822 | 9,219,662 | 3.91 | 7.34 | 4.61 | 2,000,000 | |
| | * † | * † | * † | * † | * † | * † | * † | * † | * † | * † | * † | * † | |
| Wheeling Steel Corp..... | 402,301<br>*394,819<br>(par 100) | 40,230,100<br>* 39,481,900 | 27,526,800<br>* 27,526,800 | 31,225,500<br>* 32,994,500 | 14,875,208<br>* 13,033,085 | 113,857,608<br>*113,036,285 | 2,650,888<br>* 8,005,664 | 4,388,016<br>* 9,615,968 | (x)<br>*13.30 | 3.85<br>* 8.51 | 2.72<br>* 8.88 | 1,614,640<br>* 1,500,000 | |
| Otis Steel Co..... | 841,002<br>*807,002<br>(par 5) | 4,205,010<br>* 4,035,010 | 11,503,432<br>* 11,733,017 | 11,220,000<br>* 12,000,000 | 10,154,216<br>* 9,639,442 | 37,082,658<br>* 37,407,469 | 868,730<br>* 3,687,690 | 1,607,026<br>* 4,903,952 | .08<br>* 3.41 | 4.33<br>*13.11 | 1.62<br>* 5.51 | 990,000<br>* 890,000 | |
| Colorado Fuel & Iron Co..... | 340,050<br>*340,050<br>(par 100) | 34,050,500<br>* 34,050,500 | 2,000,000<br>* 2,000,000 | 32,258,000<br>* 32,585,000 | 5,491,186<br>* 4,455,103 | 73,799,686<br>* 73,190,603 | 298,649<br>* 2,350,648 | 1,922,723<br>* 3,978,236 | .41<br>* 6.43 | 2.61<br>* 5.44 | 2.14<br>* 3.31 | 898,000<br>* 1,200,000 | |
| Crucible Steel Co. of America.... | 500,000<br>*550,000<br>(par 100) | 50,000,000<br>* 55,000,000 | 25,000,000<br>* 25,000,000 | 13,750,000<br>* 4,250,000 | 30,104,841<br>* 26,264,044 | 118,854,841<br>*110,514,044 | 4,045,122<br>* 8,162,343 | 4,541,650<br>* 8,364,426 | 4.59<br>*11.66 | 3.85<br>* 7.57 | 4.04<br>* 8.33 | 1,000,150<br>* 1,003,750 | |
| Lukens Steel Co.§..... | 317,976<br>*317,976<br>(par 50) | 15,898,800<br>* 15,898,800 | None<br>* None | 4,358,200<br>* 4,513,600 | 3,794,724<br>* 4,119,799 | 24,051,724<br>* 24,532,199 | 20,871<br>* 663,375 | 432,506<br>* 1,030,617 | .06<br>* 2.09 | .127<br>* 4.17 | .87<br>* 2.06 | 500,000<br>* 500,000 | |
| Pittsburgh Steel Co.‡..... | 253,500<br>*253,500<br>(par 100) | 25,350,000<br>* 25,350,000 | 10,475,000<br>* 10,475,000 | 9,901,000<br>* 9,927,570 | 12,258,461<br>* 9,927,570 | 57,984,461<br>* 56,752,570 | 1,689,692<br>* 4,535,437 | 2,377,804<br>* 5,132,865 | 3.77<br>*14.86 | 6.64<br>* 9.04 | 3.30<br>* 8.05 | 720,000<br>* 600,000 | |
| Granite City Steel Co..... | 292,347<br>*292,347<br>(no par) | 6,976,463<br>* 6,976,463 | None<br>* None | None<br>* None | 2,356,960<br>* 2,721,921 | 9,333,424<br>* 9,698,384 | 700,716<br>* 1,682,690 | 700,716<br>* 1,682,691 | 2.40<br>* 5.68 | .075<br>*17.35 | 1.95<br>* 4.67 | 360,000<br>* 360,000 | |
| Midvale Co..... | 200,000<br>*200,000<br>(no par) | 14,574,621<br>* 14,574,621 | None<br>* None | None<br>* None | 1,965,485<br>* 1,275,908 | 16,540,106<br>* 15,850,529 | 1,403,728<br>* 1,368,033 | 1,403,728<br>* 1,368,033 | 7.01<br>* 6.84 | 8.49<br>* 8.62 | 7.01<br>* 6.84 | 200,000<br>* 222,000 | |
| Sharon Steel Hoop Co..... | 375,000<br>(no par) | 1,875,000 | None | 6,400,000 | 16,672,777(d) | 24,947,777 | 752,803(x) | 436,190(x) | (x) | (x) | (x) | 450,000 | |
| | *286,240<br>(par 50) | * 14,312,000 | * 999,700 | * 6,750,000 | * 994,946 | * 23,056,646 | * 1,341,215 | * 2,846,958 | * 3.69 | *12.35 | * 5.93 | * 480,000 | |
| Allegheny Steel Co..... | 610,616<br>*610,026<br>(no par) | 3,816,350<br>* 3,812,663 | 3,342,600<br>* 3,342,600 | None<br>* None | 14,427,372<br>* 15,024,039 | 21,586,322<br>* 22,179,302 | 1,610,292<br>* 3,311,493 | 1,610,292<br>* 3,311,493 | 2.25<br>* 5.04 | 7.45<br>*14.93 | 4.77<br>* 9.79 | 338,000<br>* 338,000 | |
| Gulf States Steel Co..... | 197,500<br>*125,000<br>(par 100) | 16,850,000<br>* 12,500,000 | 2,000,000<br>* 2,000,000 | 5,562,500<br>* 3,812,000 | 4,542,086<br>* 5,699,306 | 28,954,586<br>* 24,011,306 | 815,334(x)<br>* 1,310,301 | (x)<br>* 1,518,291 | (x)<br>* 5.93 | (x)<br>* 6.32 | (x)<br>* 5.06 | 264,000<br>* 300,000 | |
| Continental Steel Corp..... | 179,762<br>*178,263<br>(no par) | 5,991,727<br>* 5,964,080 | 3,031,500<br>* 3,110,800 | 1,675,000<br>* 1,815,000 | 1,841,427<br>* 2,086,929 | 12,539,653<br>* 12,976,809 | 37,908(x)<br>* 932,030 | 120,120(x)<br>* 1,102,264 | (x)<br>* 4.01 | (x)<br>* 8.05 | (x)<br>* 4.48 | 280,000<br>* 210,000 | |
| Total, 1930..... | | $1,760,347,264 | $685,511,932 | $555,537,588 | $1,366,957,172 | $4,366,703,324 | $167,333,920 | $198,775,599 | | 3.71% | $2.59 | 60,225,495 | |
| Total, 1929..... | | 1,596,408,353(f) | 688,802,337(f) | 553,534,025(f) | 1,143,157,089(f) | 4,003,442,316(f) | 537,421,826(f) | 371,118,899(f) | | 9.88(f) | 6.42(f) | 49,149,750(f) | |

† Not formed in 1929.
* As of Dec. 31, 1929.
(x) Loss.
‡ Fiscal year ends June 30.
§ Fiscal Year ends Oct. 25.
(a) Included 2 extras of $1 each.
(b) $5 in cash and 5% in stock.
(c) $3 and $1 extra.
(d) Includes excess of Capital of $15,966,212 over stated value of capital stock; arising from conversion of par value stock to stock without par value.
(e) Of which $1.00 is extra dividend in 25c extra each quarter.
(f) Excludes Republic, National Steel Co's., not formed in 1929

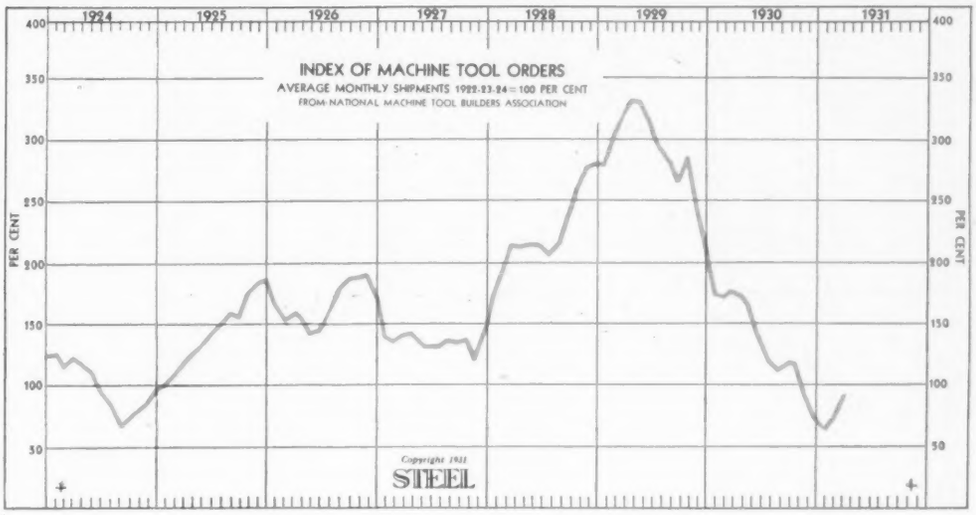
# ts and Capacities of Leading

# nies in 1930

with 1929)

| Earnings per Share | Per Cent Total Earnings on Capitalization | Earnings Per Ton Ingot Capacity | Rated Ingot Capacity Tons | Capitalization Per Ton Ingot Capacity | Dividend Rate Per Common Shares | Total Assets | Current Assets | Current Liabilities | NAME OF COMPANY |
|---|---|---|---|---|---|---|---|---|---|
| $9.18 | 5.11% | $4.11 | 26,778,000 | $80.39 | $7.00 | $2,394,544,611 | $578,373,097 | $108,873,455 | .....United States Steel Corp. |
| *20.13 | *10.11 | * 8.05 | *24,201,500 | *83.12 | *7.00 | *2,286,183,655 | *562,232,507 | *121,358,042 | |
| 5.26 | 4.63 | 3.60 | 8,610,000 | 77.86 | 6.00 | 719,760,397 | 159,369,624 | 39,948,347 | .....Bethlehem Steel Corp. |
| *15.50 | * 7.28 | * 6.68 | * 8,000,000 | *91.85 | *6.00 * | 801,631,362 | *228,171,775 | * 48,926,119 | |
| (x) | .005 | .03 | 4,806,000 | 57.39 | —— | 308,501,483 | 57,257,777 | 15,876,995 | .....Republic Steel Corp. |
| * † | * † | * † | * † | * † | * † * | † | * † | * † | |
| 8.21 | 4.65 | 2.75 | 3,420,000 | 59.05 | 5.00 | 219,583,127 | 72,733,249 | 7,374,633 | ....Jones & Laughlin Steel Corp. |
| *29.04 | *11.27 | * 6.56 | * 3,270,000 | *58.17 | *7.00(a) * | 222,025,515 | * 89,853,124 | * 11,403,294 | |
| 5.17 | 5.02 | 3.42 | 3,120,000 | 68.23 | 5.00 | 233,246,612 | 80,531,564 | 12,280,361 | ..Youngstown Sheet & Tube Co. |
| *17.28 | *11.71 | * 9.29 | * 2,717,000 | *79.29 | *5.00 * | 235,740,721 | * 89,258,388 | * 14,360,250 | |
| 5.41 | 8.15 | 3.89 | 2,000,000 | 47.81 | 4.00 | 103,040,270 | 30,087,550 | 3,983,384 | .....Inland Steel Co. |
| * 9.76 | *13.59 | * 7.25 | * 1,800,000 | *53.26 | *3.50 * | 103,201,646 | * 36,547,145 | * 4,476,759 | |
| .03 | 1.79 | 1.08 | 1,876,705 | 60.39 | —— | 148,360,278 | 34,196,437 | 4,794,689 | .....American Rolling Mill Co. |
| * 4.24 | * 8.44 | * 4.94 | * 1,557,500 | *58.47 | *4.00 * | 128,819,297 | * 28,724,132 | * 10,182,434 | |
| 3.91 | 7.34 | 4.61 | 2,000,000 | 57.30 | 2.00 | 136,162,602 | 31,122,525 | 19,367,068 | .....National Steel Corp. |
| * † | * † | * † | * † | * † | * † * | † | * † | * † | |
| (x) | 3.85 | 2.72 | 1,614,640 | 70.52 | —— | 124,837,984 | 40,702,897 | 7,651,379 | .....Wheeling Steel Corp. |
| *13.30 | * 8.51 | * 8.88 | * 1,500,000 | *75.36 | *2.00 * | 128,364,171 | * 45,249,506 | * 6,841,044 | |
| .08 | 4.33 | 1.62 | 990,000 | 37.46 | —— | 39,753,852 | 11,895,854 | 1,724,533 | .....Otis Steel Co. |
| * 3.41 | *13.11 | * 5.51 | * 890,000 | *42.03 | *2.50 * | 42,632,294 | * 13,028,891 | * 2,505,718 | |
| .41 | 2.61 | 2.14 | 898,000 | 82.18 | 1.00 | 78,019,426 | 16,686,861 | 4,042,356 | .....Colorado Fuel & Iron Co. |
| * 6.43 | * 5.44 | * 3.31 | * 1,200,000 | *60.91 | *2.00 * | 80,072,926 | * 18,781,976 | * 5,096,698 | |
| 4.59 | 3.85 | 4.04 | 1,000,150 | 118.85 | 5.00 | 122,674,309 | 27,013,138 | 3,819,468 | ....Crucible Steel Co. of America |
| *11.66 | * 7.57 | * 8.33 | * 1,003,750 | *110.10 | *7.00(b) * | 124,358,990 | * 37,730,627 | * 10,794,114 | |
| .06 | .127 | .87 | 500,000 | 31.80 | —— | 26,658,429 | 5,722,364 | 2,568,969 | .....§Lukens Steel Co. |
| * 2.09 | * 4.17 | * 2.06 | * 500,000 | *31.80 | * —— * | 27,546,477 | * 6,486,248 | * 2,982,874 | |
| 3.77 | 6.64 | 3.30 | 720,000 | 80.53 | 4.00 | 79,531,851 | 21,090,907 | 2,415,254 | .....‡Pittsburgh Steel Co. |
| *14.86 | * 9.04 | * 8.05 | * 600,000 | *94.58 | *4.00 * | 81,035,218 | * 22,095,341 | * 3,773,779 | |
| 2.40 | .075 | 1.95 | 360,000 | 25.93 | 3.00 | 10,153,413 | 4,352,541 | 464,177 | .....Granite City Steel Co. |
| * 5.68 | *17.35 | * 4.67 | * 360,000 | *26.93 | *4.00 * | 10,668,924 | * 5,262,837 | * 650,577 | |
| 7.01 | 8.49 | 7.01 | 200,000 | 82.70 | 4.00(c) | 17,629,893 | 8,683,380 | 452,946 | .....Midvale Co. |
| * 6.84 | * 8.62 | * 6.84 | * 222,000 | *71.40 | *4.00(c) * | 17,259,156 | * 7,984,584 | * 332,149 | |
| (x) | (x) | (x) | 450,000 | 55.44 | —— | 26,544,065 | 5,348,300 | 990,199 | .....Sharon Steel Hoop Co. |
| * 3.69 | *12.35 | * 5.93 | * 480,000 | *48.03 | *2.00 * | 28,631,935 | * 6,791,422 | * 1,594,202 | |
| 2.25 | 7.45 | 4.77 | 338,000 | 63.87 | 1.80 | 30,100,067 | 9,606,652 | 1,693,416 | .....Allegheny Steel Co. |
| * 5.04 | *14.93 | * 9.79 | * 338,000 | *65.61 | *2.80(e) * | 30,559,518 | * 11,417,607 | * 2,414,374 | |
| (x) | (x) | (x) | 264,000 | 109.00 | —— | 32,351,905 | 5,831,555 | 2,867,302 | .....Gulf States Steel Co. |
| * 5.93 | * 6.32 | * 5.06 | * 300,000 | *80.04 | * 4.00 * | 30,457,027 | * 9,924,251 | * 1,268,628 | |
| (x) | (x) | (x) | 280,000 | 44.78 | —— | 13,756,923 | 4,634,925 | 933,744 | .....Continental Steel Corp. |
| * 4.01 | * 8.05 | * 4.48 | * 210,000 | *61.79 | * —— * | 14,730,471 | * 5,125,656 | * 1,325,617 | |
| | 3.71% | $2.59 | 60,225,495 | $65.57 | | $5,865,211,497 | $1,225,241,179 | $242,122,676 | .....Total, 1930 |
| | 9.88(f) | 6.42(f) | 49,149,750(f) | 59.64(f) | | 4,393,919,303(f) | 1,255,788,542(f) | 250,286,672(f) | .....Total, 1929 |

† Not formed in 1929.
* As of Dec. 31 1929.
(x) Loss.
‡ Fiscal year ends June 30.
§ Fiscal Year ends Oct. 25.
(a) Included 2 extras of $1 each.
(b) $5 in cash and 3% in stock.
(c) $3 and $1 extra.
(d) Includes excess of Capital of $15,966,212 over stated value of capital stock; arising from conversion of par value stock to stock without par value.
(e) Of which $1.00 is extra dividend in 25c extra each quarter.
(f) Excludes Republic, National Steel Co's., not formed in 1929.



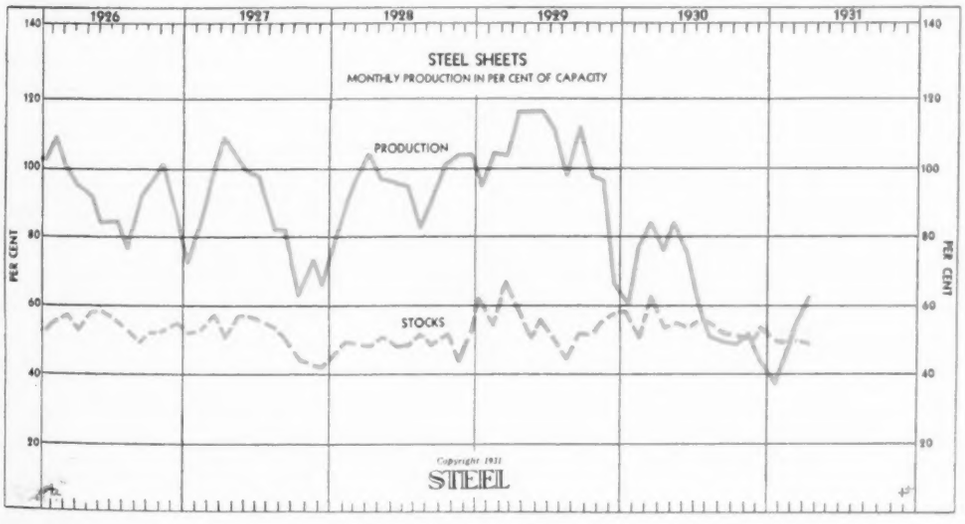

| | 1931 | 1930 |
|---|---|---|
| March | 89.4 | 177.8 |
| February | 73.1 | 172.6 |
| January | 65.3 | 175.4 |
| | **1930** | **1929** |
| December | 73.1 | 222.1 |
| November | 95.5 | 247.2 |
| October | 113.3 | 287.0 |

## March Orders for Machine Tools Continue Upward Trend

Machine tool buying, still subject to curtailment, was stimulated enough in March to cause the index of the National Machine Tool Builders' association to assume an upward seasonal trend. The three months' moving average, at 89.4, was well above February's 73.1. For the single month the index was 115.7, compared with 82.2 in February. The group of smaller companies experienced the best volume, being the only group to surpass the 1930 monthly average. Both unfilled orders and shipments were in a better position, shipments going from a low of 72.6 in February to 91.9 in March. Unfilled orders, at the March rate of shipment, represent about two and a half months' production.

## Stocks of Steel Sheets Are Reduced Despite Gain in Output

Output of steel sheets by independent producers increased for the third consecutive month in March, but a large increase in sales brought a small decrease in stocks. Rate of production moved upward from 57.2 per cent of capacity in February to 61.1 per cent in March. A year ago a drop from 83.9 to 73.7 per cent took place. Sales in March gained 26 per cent in tonnage and reached 64.3 per cent of capacity. Shipments also made further gains, to 56.7 per cent. Stocks were down to 51.7 per cent from 54.1 per cent in the previous period, and also were less than in March, 1930. Unsold stocks and stocks awaiting shipment were 24.3 and 27.4 per cent of capacity.

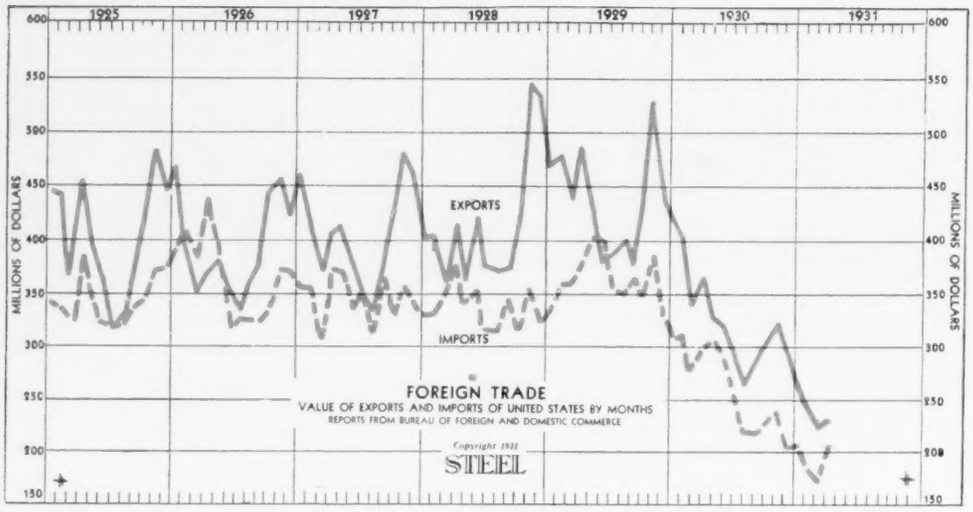



**Production**
Per cent of capacity

| | 1931 | 1930 |
|---|---|---|
| March | 61.1 | 73.7 |
| February | 57.2 | 83.9 |
| January | 45.1 | 77.6 |
| | **1930** | **1929** |
| December | 39.8 | 60.0 |

**Stocks**
Per cent of capacity

| | 1931 | 1930 |
|---|---|---|
| March | 51.7 | 54.6 |
| February | 54.1 | 61.4 |
| January | 48.4 | 51.0 |
| | **1930** | **1929** |
| December | 50.6 | 57.3 |




**EXPORTS**

| | |
|---|---|
| March, 1931 | $237,000,000 |
| February, 1931 | 226,000,000 |
| March, 1930 | 369,624,000 |

**IMPORTS**

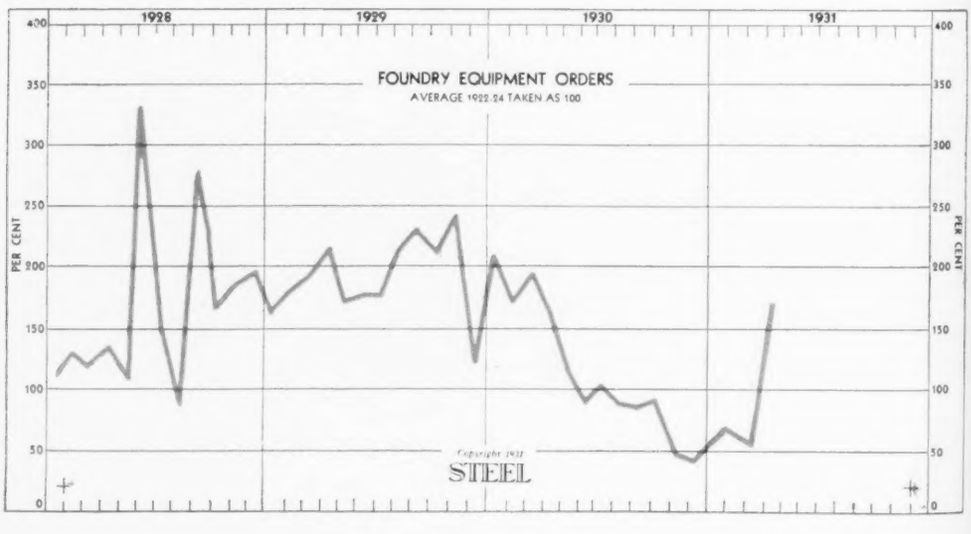
| | |
|---|---|
| March, 1931 | $211,000,000 |
| February, 1931 | 175,000,000 |
| March, 1930 | 300,464,000 |

## Exports Change Course with Small Gain, Imports Rise More Sharply

American foreign trade turned upward in March, both exports and imports topping February figures. Imports made the best gain, from $175,000,000 to $211,000,000. Exports climbed from $226,000,000 to $237,000,000. The trend simulated that of March last year, when exports moved up to $369,624,000 and imports to $300,464,000. However, the preponderance of the import gain reduced the trade balance to $26,000,000 during the past month. The improvement in exports is the first since last October, when the subnormal peak of fall shipments was reached. Imports experienced a very slight rise last December. Exports in the first quarter totaled $711,080,000.

## Foundry Equipment Orders Show Marked Improvement in March

A decided expansion in foundry equipment buying in March lifted the index of gross orders to the best position in a year. Specifically, the indicator jumped from 54.71 in February to 174.4. It was above the previous March, but under 209.4, at which point it stood two years ago. It was the best single month since February, 1930. The moving average for three months was lifted from 59.9 in the previous month to 98.1. Meanwhile shipments increased to 72.9, still far below March last year. Unfilled orders also were considerably below the figure of a year ago, 411.1, but the new buying caused the unfilled orders index to go from 93.5 to 314.6.




**Per Cent**

| | 1931 | 1930 |
|---|---|---|
| March | 174.4 | 164.1 |
| February | 54.7 | 196.4 |
| January | 65.3 | 160.1 |

| | 1930 | 1929 |
|---|---|---|
| December | 59.8 | 208.0 |
| November | 45.3 | 128.6 |
| October | 50.0 | 245.3 |

# Foundry Industry Preparing For Chicago Convention and Show

CASTINGS manufacture, which is most diversified and widespread, constitutes one of the country's leading industries, yet the lack of accurate production figures encourages the tendency to minimize the importance of the foundry industry. As a matter of fact, the combined foundry and machine shop industries in 1929 stood fourth in the list of manufacturing industries of the United States with products valued at nearly three billion dollars. Automobile manufacture was the leader with the meat packing and iron and steel industries following closely. Oil refining and electrical machinery, equipment and accessories, follow in fifth and sixth places. Total value of all manufactured products in 1929, which was a record year, amounted to $69,417,515,929.

Because production figures are not compiled for all branches of the foundry industry, castings output can be ascertained only through estimation. In 1929, steel castings reached the record total of 1,583;040 gross tons. During the same year, production of malleable castings was 824,856 tons; the two aggregate a figure in excess of 2,400,000 tons.

Statistics for gray iron castings are totally lacking, but it is known that production would amount to several times the combined output of steel and malleable castings. For example, the average annual production of cast-iron pipe alone in recent years in the United States has exceeded 1,500,000 tons, and to this must be added the hundreds of thousands tons of gray iron castings made each year for the iron and steel, automobile, agricultural, railroad, oil refining, machine tool, electrical, textile, rubber, meat packing, marine, food products, mining, glass, paint, and countless other industries of varying size. And to the total of steel, malleable and gray iron castings must be added the thousands of tons of nonferrous castings, including a large output of die castings which find use in many ways.

*Stevens hotel, center of activities of American Foundrymen's association, May 4-7*

Thus, it is not difficult to see that although the combined foundry and

machine shop industries are rated fourth in value of products manufactured, the foundry industry assumes a most important position in the industrial development of the country.

In its continuous growth and attainment of a prominent position, the foundry industry has been fortunate to have the co-operation of a great technical organization, the American Foundrymen's association. Established in 1896, this association has contributed in a major way to the advancement of castings manufacture by bringing together for mutual benefit representatives of all branches of the profession. The acknowledged standards of present-day molding practice, melting, heat treatment, physical qualities of castings, sand control, sales methods, cost finding and apprentice training are attributable directly to the efforts of this association.

For thirty-four years, the American Foundrymen's association has conducted an annual convention and exhibition and now is on the threshold of its thirty-fifth, which is to be held in the Stevens hotel, Chicago, May 4-7. To Chicago goes the distinction of being the only city in the country to be the host on six different occasions. In 1900, just five years after the birth of the association, the members met for the first time on the shores of Lake Michigan, and since that sime, conventions were held in Chicago in 1912, 1913, 1927 and 1929.

*Looking up Michigan boulevard*

From the opening on May 4, until the close of the meeting on May 7, foundrymen will be provided with a program of technical sessions, round table meetings and shop operation courses, which should surpass in interest and value those of previous meetings. The sessions are planned to provide papers and discussions for all branches of the industry, and will appeal to executives, engineers, metallurgists and shop men. In addition to the meetings, a splendid group of exhibits of foundry equipment and supplies will be on display in the exhibition halls of the Stevens hotel, the center of the week's activities.

The Chicago district, the largest foundry center in the country, will provide many points of interest for those wishing to spend a part of their time in plant visitation.

The annual exhibitors dinner is scheduled for Monday evening. On Tuesday evening, instructors of engineering schools will hold their annual

# Tentative Program of Events and Technical

**Monday, May 4**

9:00 a.m.—*Registration*
10:00 a.m.—*Committee Meetings*
12:00 noon—*Exhibits Open*
1:30 p.m.—*Committee Meetings*
*Shop Operation Course*

Gray Iron (1st session) Subject: Gates and Risers.

3:00 p.m.—*General Opening Meeting*

Address of President.
A Cross Section of the British Foundry Industry, by V. C. Faulkner, Editor, Foundry Trade Journal. Exchange paper of the Institute of British Foundrymen.

4:00 p.m.—*Committee Meetings*
4:30 p.m.—*Shop Operation Course*

Sand Control (1st session) Subject: Moisture Control.

7:00 p.m.—*Exhibitors' Dinner*

**Tuesday, May 5**

9:00 a.m.—*Shop Operation Course*

Sand Control (2nd session) Subject: Permeability and Fineness.

10:00 a.m.—*Gray Iron—High Test Alloy Cast Iron and Testing*

Manufacture and Use of Cupola High Test and Alloy Irons in a Machine Tool and Jobbing Foundry, by L. M. Sherwin and T. F. Kiley, Brown & Sharpe Mfg. Co., Providence, R. I.
Testing Cast Iron, by Major Nicolau, Paris, France. Exchange paper of the French Foundry Technical Association.
A New Type of Inclusion in Cast Iron and Its Relation to Manganese and Silicon Content, by F. J. Cook, Birmingham, England.
The Effect of Soaking Time on Initial Temperature and Analysis by W. H. Spencer and W. M. Walding, American Cast Iron Pipe Co., Birmingham, Ala.

10:00 a.m.—*Malleable—Metals and Melting*

Thermal Balances of Melting Furnaces and Production Costs in Malleable Foundries, by J. H. Hruska, Berwyn, Ill.
Report of Representatives on Joint Committee on Refractories, by J. R. Allan, International Harvester Co., Chicago.
Reports of Committees.

10:00 a.m.—*Nonferrous—Foundry Costs*

Weak Points in Cost Systems Which Permit Leakages, by E. A. Baker, E. A. Baker Corp., New York City.

10:00 a.m.—*Pattern Production Round Table*

12:15 p.m.—*Malleable Luncheon and Round Table*

2:00 p.m.—*Foundry Costs*

Report of Committee To Formulate Data Which Should Be Supplied When Estimates Are Requested
Report of Committee on Methods of Determining Molding Costs.

2:00 p.m.—*Sand Research*

Shape of Sand Grains, by Dr. H. Ries and G. D. Conant, Cornell university, Ithaca, N. Y.
Relation Between Sand Grains and Strength of Sand, by Dr. H. Ries and H. V. Lee, Cornell university, Ithaca, New York.
Effect of Heat on the Permeability of Facing and Core Sands, by W. M. Saunders, Providence, R. I.
Some Observations on the Use of Synthetic Sands, by L. B. Knight, National Engineering Co., Chicago.
Reports of Committees.

4:00 p.m.—*Shop Operation Courses*

Steel (1st session) Subject: Shrinkage of Steel, Shrinkage Allowance, Distortion of Patterns, and Proper Heading and Gating.
Gray Iron (2nd session) Subject: High Test Cast Iron.
Malleable (1st session) Subject: Melting Practice.
Nonferrous (1st session) Subject: Fluidity and Shrinkage as Factors Affecting Gating.

7:00 p.m.—*Dinner—Instructors of Engineering Schools*

**Wednesday, May 6**

9:00 a.m.—*Shop Operation Course*

Sand Control (3rd Session) Subject: Bond Strength Control.

10:00 a.m.—*Gray Iron—Melting Methods*

Melting Gray Iron and Malleable Iron in the Indirect Arc Furnace, by J. H. Vogel and J. C. Bennett, York Ice Machinery Co., York, Pa.

dinner. This feature of the convention has been growing in interest and it is expected that the attendance will exceed that at recent conventions. The annual banquet will be held on Wednesday evening. Hugh Morrow, president, Sloss-Sheffield Steel & Iron Co., Birmingham, will act as toastmaster.

At the general opening meeting on Monday, the exchange paper of the Institute of British Foundrymen will be read. This paper, by V. C. Faulkner, editor, *Foundry Trade Journal*, will present an interesting review of the British foundry industry. An interesting lecture has been secured for the business session on Thursday. Col. T. C. Dickson, commandant of the United States Arsenal, Watertown, Mass., will talk on "Centrifugal Castings of Guns," one of the outstanding developments in ordnance production. Details of the program are given in the accompanying outline on this and the preceding page.

The committee on foundry costs will have two interesting reports to present for discussion. The committee on methods for determining molding costs has made a survey of the practices used throughout the country and the data secured will be presented at the meeting. The second committee report will be on data which should be furnished by the purchaser of castings when requesting estimates.

*The old Water Tower is a landmark*

Five shop operations courses are scheduled for this year's convention, two more than for last year's meeting, as courses on sand control and malleable founding have been added. These courses, which have been established to give instruction in the fundamentals of shop practice, will cover, in addition to the two new courses, gray iron, steel and nonferrous founding.

The committee on gray iron founding has prepared a four-session course. Two sessions will be devoted to cupola operation and one each to gating and high test iron. The committee organizing the steel foundry course has planned three sessions. These will cover shrinkage distortion of patterns and heading and gating, cleaning room practice and heat treating.

Two sessions are scheduled for the malleable course, the initial course on this subject. Melting will be discussed at the first session and molding problems at the second.

Because of the demand which has arisen for information on sand con-

(*Concluded on Page* 54)

# Papers Scheduled for Foundry Convention

Electric Process Iron for Cylinder and Cylinder Head Castings, by H. E. Bromer, Standard Foundry Co., Racine, Wis.
A Hot Blast Cupola, by J. T. MacKenzie, American Cast Iron Pipe Co., Birmingham, Ala.
Effect of Atmospheric Moisture on Cupola Operation by N. A. Moore, Piston Ring Co., Muskegon, Mich.

10:00 a.m.—*Nonferrous—Plant Methods*

Deep Etching of Brass as Applied to Gating Problems, by R. W. Parsons, Ohio Brass Co., Mansfield, Ohio.
Cupola Melting of Brass, by T. Mauland, International Harvester Co., Chicago.
Bronze Pressure Castings, by J. E. Crown, U. S. Naval Gun Factory, Washington, D. C.
Report of Committee on Recommended Practices.

10:00 a.m.—*Steel Founding—Metallurgy*

Chemical Composition as Employed for Classifying Carbon and Alloy Steels for Castings, by Major R. A. Bull, Electric Steel Founders' Research Group, Chicago.
Some Metallurgical Points in Acid-Open-Hearth and Electric Steel for Castings, by F. A. Melmoth, Detroit Steel Casting Co., Detroit, Mich.

12:15 p.m.—*Steel Luncheon and Round Table*

12:15 p.m.—*Nonferrous Luncheon and Round Table*

2:00 p.m.—*Apprentice Training*

Getting A Community Apprenticeship Under Way, by H. S. Falk, Falk Corp., Milwaukee, Wis.
Related Instruction, by S. M. Brah, Tri-City Manufacturers' association, Moline, Ill.

4:00 p.m.—*Shop Operation Courses*

Steel (2nd session) Subject: Cleaning Room Practice.
Gray Iron (3rd session) Subject: Cupola Practice.
Malleable (2nd session) Subject: Molding Practice.
Nonferrous (2nd session) Subject: Gating practice with Reference to Aluminum Bronze, Manganese Bronze, Yellow Brass and Nickel Alloys.

7:00 p.m.—*Annual Banquet*

**Thursday, May 7**

9:00 a.m.—*Shop Operation Course*

Sand Control (4th session) Subject: Sand Losses.

10:00 a.m.—*Gray Iron—General Practice*

Factors Which Influence the Surface Quality of Gray Iron Castings, by W. G. Reichert and D. Woolley, Singer Mfg. Co., Elizabethport, N. J.
The Microscope as a Tool in Investigating Cast Iron, by R. M. Allen, Bloomfield, N. J.
Report of Committee on Recommended Practices.
A Contribution to the Study of the Part Played by Phosphorus in Cast Iron, by J. Dessent and M. Kagan, Liege, Belgium. Presented on behalf of Belgium Technical Association.

10:00 a.m.—*Nonferrous—Plant Practice*

Molding Practice for Heat Treated Aluminum Alloy Castings, by L. H. Fawcett, U. S. Naval Gun Factory, Washington, D. C.
The X-Ray as a Tool for Improving Aluminum Alloy Foundry Practice, by H. J. Rowe and E. M. Gingerich, Aluminum Co. of America, Cleveland.
Permanent Mold Foundry Practice for Brass and Bronze Castings, by Henri Marius, Lenoir Car Works, Lenoir City, Tenn.

10:00 a.m.—*Steel—Plant Practice*

A Comparison of Synthetic and Natural Bonded Molding Sands for Steel Foundries, by H. J. Cole, General Electric Co., Schenectady, N. Y.
Interrelationship of Pin Hole Trouble and the Low Ductility Problem, by George Batty, Steel Castings Development Bureau, Philadelphia.
Detecting Casting Defects by Radiography, Using Gamma Rays, by C. W. Briggs and R. A. Gezelius, Naval Research Laboratory, Anacostia, D. C.

2:00 p.m.—*Annual Business Meeting*

Report of Officers and Committees.
Centrifugal Casting of Guns, by Col. T. C. Dickson, Watertown Arsenal, Watertown, Mass.

4:00 p.m.—*Shop Operation Courses*

Steel (3rd Session) Subject: Heat Treating Practice.
Gray Iron (4th session) Cupola Practice. Subject: Gates and Risers.
Nonferrous (3rd session) Subject: Gating Practice as Related to Red Brass and Aluminum Alloys.

5:00 p.m.—*Official Closing of Exhibits*

*Typical example of an intricate chrome-nickel steel casting*

# Casting Chrome-Nickel Steel Requires Special Care

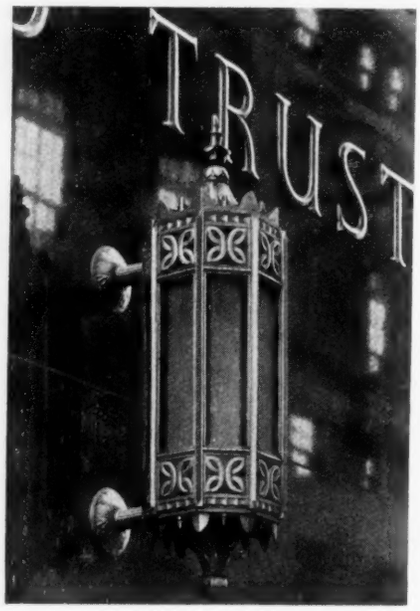
BY H. R. SIMONDS
Associate Editor, STEEL

EARLY in 1926 the Passaic Valley sewer commission, Newark, N. J., discovered two badly corroded cast iron sections in a sewer line and the problem of replacement was put up to the William J. Sweet Foundry Co., now the Cooper Alloy Foundry Co., then located at Irvington, N. J.

Investigation disclosed that corrosion was due to acid conditions emanating from a chemical plant operating in the vicinity, and it was decided to use a chrome-nickel alloy steel casting to avoid future corrosion of these same sections. Accordingly, in February, 1926, two successful control gate castings, 24 inches in diameter were made of 18 and 8 chrome-nickel alloy steel.

These are thought to have been the first commercial castings of this alloy made in the United States. At last report these castings, in service for five years, showed no sign of corrosion or wear. Since 1926 the use of chrome-nickel steel castings, particularly those containing approximately 18 per cent chromium and 8 per cent nickel, has expanded rapidly and one by one difficulties in manufacture have been met and solved. Recently the William J. Sweet Foundry Co. has turned its entire energy toward producing castings of nearly all types, made of the 18 and 8 chrome-nickel steel.

The modernistic trend toward the use of white metals in building construction has carried with it an insistent demand for ornamental 18 and 8 castings. In many cases these castings must have smooth surfaces suitable for polishing, as well as fine, sharp detail. The difficulty in making castings of this character is readily understood when it is recalled that the chrome-nickel steel melts at about 2700 degrees Fahr. and requires a superheating to well over 3000 degrees Fahr. for the pouring temperature in the case of light sections. A further difficulty is the exceedingly high shrinkage of the metal, amounting to about 5/16-inch per foot.




*Ornamental lantern and lettering, of cast chrome-nickel steel, on the building of the Central Hanover Bank & Trust Co., New York*

The Sweet company recently completed some unusual castings for the exterior of a new bank building in New York and a description of the procedure in the production of these castings will serve to illustrate the care and attention to detail required in the casting of 18 and 8 alloy.

About two years ago the company moved its plant from Irvington to Newark and became affiliated with the Industrial Alloy Products Co., New York. The foundry now is housed in a spacious building served with overhead crane and equipped with a Moore-type electric furnace and modern sand treating machinery. The furnace has a capacity of 500 pounds per hour. An important part of the plant is a fully equipped laboratory for chemical and physical testing. It is standard practice at the foundry to take test bars from a first ladle, a middle ladle and an end ladle of each heat. Tests of these bars are studied carefully to determine loss in chromium, increase in carbon and other changes during pouring.

Experience has shown that the relatively small electric furnace is a distinct advantage in the production of high-chrome castings. It will melt a heat of approximately 800 pounds, this amount being sufficient for the usual ornamental work in building construction and also for nearly all casting requirements in the food and chemical industries. The small size gives the furnace flexibility and ease of control, difficult to obtain with a larger unit. When operating on chrome-nickel heats, residual traces of

chromium, nickel and silicon are present in the furnace lining and must be taken into account in determining the nature of the succeeding heat.

Metal for ornamental castings is melted under a basic slag and silicon is used as a deoxidizing agent. Success with this alloy depends upon a close link between the melting and molding operations. The ornamental castings are of light section and as they must be poured with the metal hot, the molds are placed close to the furnace. The ladles are preheated in a special furnace located near the spout.

### Molding Requires Care

For success great care must be given to all molding details. Large gates are used and many risers are needed to compensate for shrinkage. In addition to these precautions it is frequently necessary to cut brackets at the junction of light and heavy sections. Heads, gates and brackets are removed with an electric torch, after the castings are removed from the molds. Molding sand must have a refractory nature sufficient to withstand the high casting temperatures, and at the same time be fine enough to produce smooth surface and fine detail.

Many of the ornamental castings which the company has produced during the past year have been of the standard KA2 analysis. The specifications used for this alloy are as follows: Chromium 16.5 to 20.0, nickel 7.0 to 10.5, silicon 0.75, manganese 0.60, sulphur and phosphorus under 0.03, and carbon under 0.20 per cent. For some types of castings good results have been obtained using the same analysis with the addition of from 2.0 to 4.0 per cent molybdenum.

When the melter is sure he has the correct mix in the furnace his next concern is to guard against the pick up of any undesirable elements. If for any reason he is not sure of the condition of his furnace he may use a wash heat to prepare it for the 18 and 8 alloy.

The next concern is temperature; different pyrometers have been tried but the usual precedure continues to be based on the judgement of the melter. The physical properties of the molten metal change sufficiently from 2700 degrees Fahr. to well over 3000 degrees Fahr. to make it possible for an experienced man to judge the actual temperature within a safe working range. When the temperature is right the metal in the ladle has a milky appearance and is entirely free from the sluggishness which commences to appear at slightly lower temperatures.

Assuming that the mold has been properly made and baked, that the sand has the desired properties and the cores of such a nature that they will collapse easily after pouring there still remains the important job of pouring before a perfect casting can be produced. Practice in the pouring of 18 and 8 alloy is similar to that required for high-grade steel castings, except that greater care must be taken. The ladles used are those regularly employed in steel casting production.

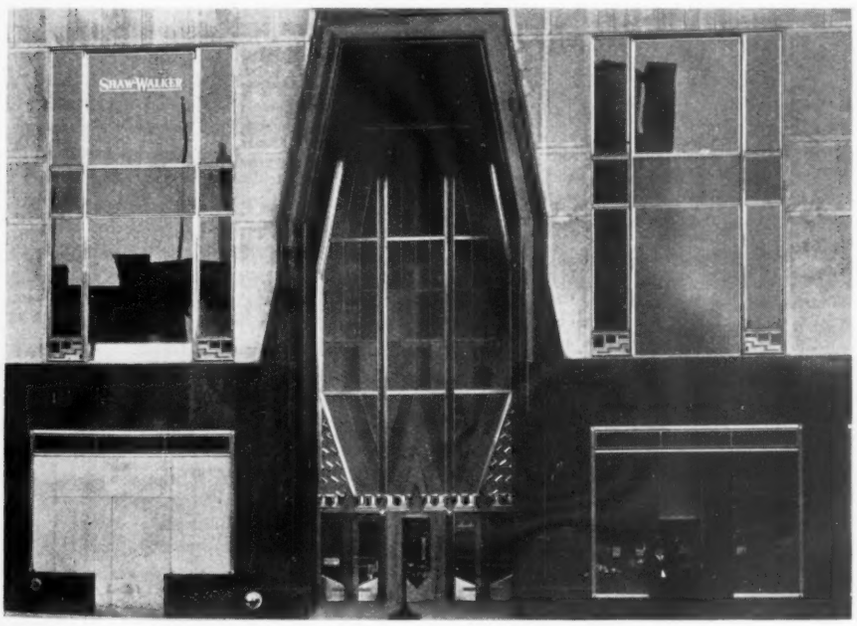
Speed in pouring is essential, tests having shown that in ordinary practice the temperature in the ladle drops as much as 400 degrees Fahr. for every 15 feet that the ladle is carried. After pouring the cooling process must be watched carefully and the copes lifted and the heads dug out at the earliest possible moment. Usually a shakeout gang follows the pouring gang and completes the shakeout of each casting immediately after solidification.

*Molds in which chrome-nickel steel castings have been poured. The metal must be poured immediately after removing from the furnace*

### Castings Are Sandblasted

After the shakeout the ornamental castings are picked up and taken to the sandblast room and then to the electric torches for the removal of gates, risers and brackets as noted, and finally to the snagging department where the irregular surfaces left by the torches are smoothed down with rubber bonded abrasive wheels traveling at about 7000 surface feet per minute.

In March of this year the Cooper Alloy Foundry Co., Elizabeth, N. J., was organized to manufacture heat and corrosion-resisting alloys, and took over the plant at 150 Broadway, Elizabeth, formerly operated by the Sweet company, the headquarters of which were in Newark. The complete organization of the latter interest has been absorbed by the new company, of which Harry A. Cooper, formerly president of the William J. Sweet Foundry Co., is now president.




*Many chrome-nickel steel castings were used in this decorative entrance to the Chrysler building, New York*

*Materials handling, power transmission and plant maintenance equipment were dominant attractions in the Cleveland Industrial exposition*

# Equipment Show Proves Aid to Plant Modernization

PLANT executives and engineers having the opportunity to visit the Second National Industrial exposition in Public auditorium, Cleveland, April 13-18, were rewarded with many ideas on modern materials handling, production, operation and management. The exposition was conducted in conjunction with the National Industrial congress under sponsorship of the American Society of Mechanical Engineers and Society of Industrial Engineers, and during the week some 100 companies displayed equipment, materials and control systems designed to provide maximum economy and efficiency in industrial fields.

Materials handling equipment proved a principal attraction with most of the machinery in operation. Several manufacturers showed electric storage battery and gasoline trucks of both platform and elevating types. Several hand trucks were shown, as well as a full line of skids and platforms, metal boxes and containers, cast and pressed metal wheels and casters.

### Hoists Are Featured

A complete line of hand and electrically-operated hoists was displayed, some made of aluminum castings. Also prominent were trolleys, monorails, numerous models of overhead traveling cranes, and clam and orange peel buckets. On all of these, electrical control was a feature.

Several types of dump cars and trailers were exhibited, while one manufacturer used photographs and motion pictures to describe its heavy-type industrial cars. Dump hoppers of various types also were in evidence.

Many styles of conveyors and roller tables were demonstrated, some motor driven and others utilizing gravity. Two or three manufacturers attracted attention with elevators and tiering machines, others showed the latest types of tying and packaging machinery. One company showed an improved furnace stoker.

Power transmission equipment was well represented with steel and rawhide gears and pinions, gear reduction units, belt and chain drives, belting, and belt lacings. Power transmission accessories included a wide range of electric motors, gasoline engine power units, storage batteries and electric controllers and switches. Attracting considerable attention was a photoelectric cell application, a device which is opening up many new avenues of safety and economy in manufacturing plants.

### Maintenance Equipment

Engineers interested in plant maintenance found many items worth investigating. Among them were sanitary wash fountains, electric water coolers, electric fans, antifriction bearings of both roller and ball types, pumps for miscellaneous uses, oil seals, signaling systems, steel partitions and steel shelving and storage bins.

Cost finding and cost tabulation is of major importance to every manufacturer and as an adjunct to this work, one company displayed a wide range of accounting machines, time clocks and recorders and other accessories necessary in engineering departments.

Miscellaneous products were displayed in several booths. One manufacturer, for example, showed steel castings for all industrial uses, several others exhibited steel forgings and still others, steel stampings. A wide range of industrial rubber products attracted attention.

In an effort to show what has been and can be done toward the elimination of waste, several manufacturers co-operated in a display revealing economies which had been effected in these plants.

Encouraged by the success of the exposition, the Midwestern Exposition Co., manager of the Cleveland show, has announced that the Third National Industrial Equipment exposition, featuring management, maintenance and materials handling, will be held in April, 1932, exact date and location of the exhibition to be announced later.

## Accident Cause Research Is Recommended

Accidents can be prevented through research to determine their causes, W. H. Cameron, managing director of the National Safety council, told safety engineers attending the eighth annual safety engineering conference of the Western Pennsylvania Safety council, held in Pittsburgh April 16. More than 200 delegates attended the sessions. Engineering problems relating to safety work provided the principal subjects for discussion. A demonstration of foreman safety training was presented by H. J. Griffith, superintendent of safety and welfare, Jones & Laughlin Steel Corp.

Speaking of the subject of "Compensation" C. S. Hamilton, manager of welfare bureau, Philadelphia Co., Pittsburgh, described workmen's compensation as having done more to bring greater co-operation and mutual understanding between employer and employe than any other single factor. A banquet in the evening concluded the program for the day.

# Are You Getting Ready?

## Good times are coming in the steel industry

Regardless of present conditions, this country will sooner or later enjoy the greatest business expansion ever known.

When the great production race starts, it will be steel mill against steel mill as never before. Then the steel companies whose plants are equipped with the most thoroughly modernized machinery will be the ones to profit most fully.

With this thought in mind, foresighted steel manufacturers are checking over every piece of equipment now—asking themselves many questions about it.

Is this mill obsolescent to the point where it should be replaced by a modern machine of greater capacity?

Has that gear drive depreciated to a degree that is likely to cause delays resulting in the disruption of the entire production schedule?

Is this overhead crane costing too much for power, lubrication and maintenance?

When the answer is "yes", it will pay you well to do some writing off and to make immediate replacements.

In making such replacements, remember that Timken Tapered Roller Bearings are revolutionizing operating and production costs in blooming mills, bar mills, sheet mills, strip mills, merchant mills, hot and cold saws and all other types of steel mill equipment.

And remember that these savings are so great that it is not uncommon for Timken-equipped machinery to pay for itself in a few months.

Now is the time to put these substantial economies into effect.

When business shifts into high, will you be ready to hold the pace?

THE TIMKEN ROLLER BEARING COMPANY, CANTON, OHIO

**TIMKEN** *Tapered Roller* **BEARINGS**

# Machine Age No Detriment to Development of Skill

STUDY of the human element in industry resolves itself into the study of skills and satisfactions, in the opinion of Dr. Lillian Gilbreth, president, Gilbreth Inc., Montclair, N. J., a featured speaker at one of the management sessions of the National Industrial congress in Cleveland, April 13-17

At one time the transfer of skill from men to machines presented a disturbing problem, but Dr. Gilbreth pointed out that the present conception of skill as comprising dexterity, knowledge and adaptability, with no overemphasis on any one, insures against skill decreasing with increased mechanization, since the opportunity presents itself of developing not only the skill of the learner, but also the skill of the teacher.

Dr. Gilbreth classified skills into five types, namely, skills in the handling of materials, money, machinery, papers and forms, and men. Workers in industry usually are adept at one of these classifications, and it is but one step into the future to vision the possibilities for diversifying vocational training so that workers may become proficient at two or more of these subdivisions. Here is the field for increasing skill—the development of a better and broader type of vocational direction.

### Three Types of Skill

In this connection Dr. Gilbreth outlined another classification of skills, as developed by Thomas Pear of the University of Manchester in England. He claimed three types of skill, measured by the type of response which a worker gave to his job—first a stimulus response, the lowest form and a response coming from the worker's immediate reaction to his task; second a sort of pattern response coming from a certain routine performance which the worker has developed in doing his work; and third the automatic response, the highest form of skill and the form producing satisfaction for the worker, a factor which is much to be desired in obtaining efficient work.

Does a man like to do a job because he does it well or does he do it well because he likes to do the job assigned to him? In answer to this question Dr. Gilbreth declared that investigations have shown that an appetite for the job leads directly to the worker giving sufficient effort to produce high quality.

The whole subject of satisfaction derived from a task, or rather satisfactions since there are various types of satisfaction, is an absorbing one and Dr. Gilbreth described various types of workers who derive peculiar satisfactions from certain phases of their work—some glory in the quantity idea, a characteristic American trait; others obtain satisfaction from doing high quality work and care nothing about quantity; still others actually like monotonous work, much to the surprise of many investigators; and likewise some workers hate monotonous work; and finally there are those who derive a peculiar satisfaction from the rhythm of their work, whether it be induced rhythm or musical.

### Keeps Men at Jobs

Careful investigation has revealed that surprisingly large numbers of workers are kept at their jobs or away from them as the case may be according to their likes and dislikes —in other words, the problem of satisfaction is a paramount one to industrial workers, and all workers for that matter.

Along this same line Dr. Gilbreth mentioned that according to psychologists the greatest urge which keeps people at work is the sense of power which they derive from their tasks. It is a serious thing to remove this sense of power from a workman and many machines due to their improper design do remove this satisfaction from the operator and make a mere slave or pair of hands of him; however, by and large, machines increase the sense of power which operators feel and are really the slaves of the operators. Machines actually extend the personality of the operator, according to Dr. Gilbreth, and this conception is rather a blow to those who claim that the mechanization of industry is destroying the human element and turning skilled workmen into robots.

Dr. Gilbreth described studies which she has made in her laboratory at Montclair, N. J., by which the movements of such workers as press operators can be analyzed on paper. Synthesized psychographs in which a film of the operation is projected on cross section paper and examined, and chromo-psychographs in which a film is made with lights attached to the operator's hands, were two specific instances of these studies.

Engineering attention which has been applied to the solution of problems of production is needed in attacking the problem of distribution, according to Gorton James, vice president, Thompson & Lichtner Co., Boston, who discussed "Distribution and Marketing" at an earlier management session of the congress.

"There is a golden opportunity to make savings in distribution through cutting sales costs, since distribution claims a relatively large portion of the final cost of an article," he declared.

### Selling Costs Need Study

Emphasis has been placed upon cutting production costs and considerable attention has been given to volume of sales, but little has been done concerning the cost of selling. "Costs of selling are not things you can average," Mr. James said; "they must be allocated through cost analysis."

Production cost, sales cost, volume of sales and return on the sale, or price, he characterized as making up a profit-determining equation of four variants. Scientific price he defined as the price which sells goods, in the volume being produced, at the best profit.

Pricing cannot be reached upon a basis of "fair return on valuation." This method was tried in the case of the railroads and appears many times in the statute books as a part of decisions and rulings, but it does not allow for the factor of competition, according to Mr. James.

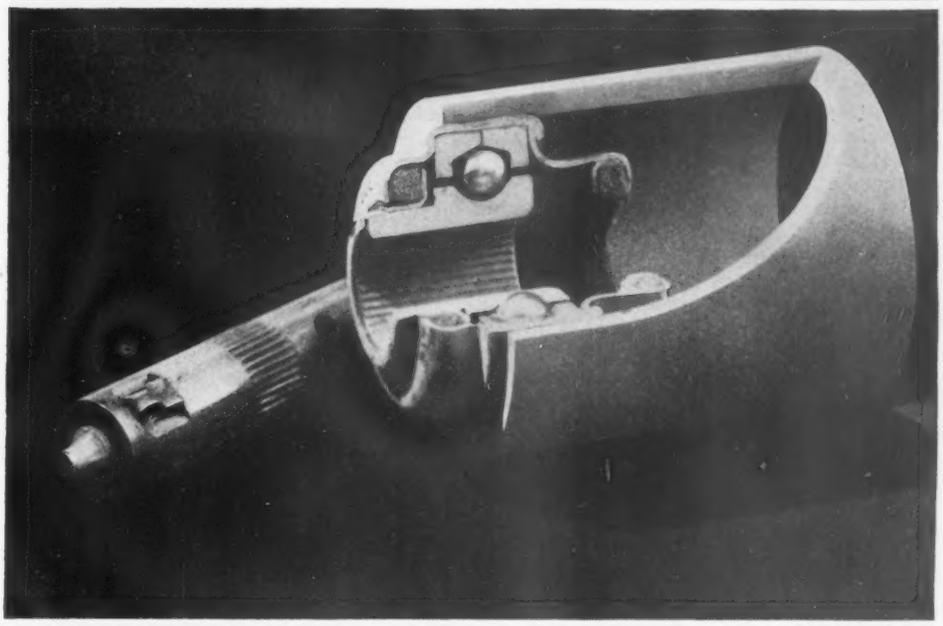
"The antitrust laws have been called to our attention recently in connection with price agreements. Suppose we have a case in which makers are able to establish a noncompetitive price. Then the market will be unable to absorb as large a volume as at a competitive price. As a result, the smaller volume of buying will bring a still keener selling competition, which invalidates the noncompetitive price."

## Daylight Distribution Is Studied in Research

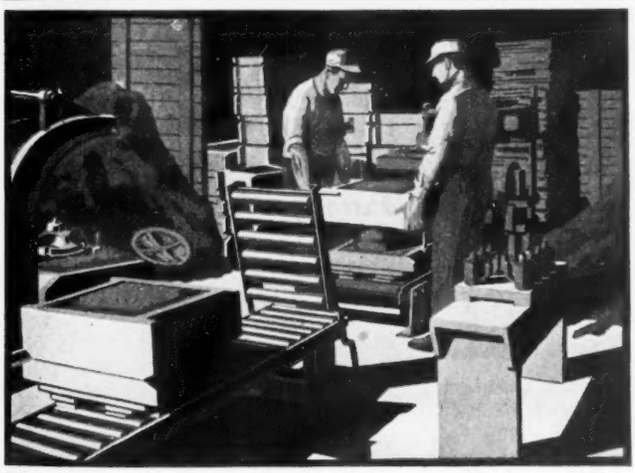
A rapid method for predicting the distribution of daylight in buildings is outlined in engineering research bulletin 17, recently published by the department of engineering research, University of Michigan, Ann Arbor, Mich. The bulletin presents a detailed account of the protractor method based on the analytic formula of Higbie and Levin for predicting daylight illumination of buildings. This formula was evolved to determine the probable illumination from rectangular surface sources at any angle with the working plane. The present bulletin works out a simpler method of applying the formula and illustrates its application to eight different types of build-

# PROTECTED BEARINGS

## guard the life of MATHEWS CONVEYERS



WATCH the experienced buyer of roller conveyer as he examines a catalog. Quickly, he leafs to the pages which illustrate and describe bearings, the heart of all roller conveyer. Listen to the first question he fires at every conveyer sales engineer. *Again, it's bearings!* He demands that bearings be sturdy enough to carry even greater loads than will probably be assigned them—that they be constructed to withstand severe shock—that they be fully protected against dust, dirt, spilled metal and other clogging elements. In the new, improved Mathews Gravity Roller Conveyer, he finds bearings which more than measure up to these rigid specifications—he finds conveyer which is exactingly designed and built for the heaviest of heavy duty handling service everywhere.



*Westinghouse, in its Cleveland foundry, uses Mathews Roller Conveyer to move molds for motor end shield castings*

***A Doubly Protected Bearing***—Study the unretouched photograph of the cutaway Mathews Type 52B Bearing shown at the top of this page. Note how it is doubly protected from foreign matter which might work into ordinary bearings. Outside there is a steel and felt washer labyrinth which effectively excludes even fine dust. Inside, a retaining seal, in close contact with the axle, keeps lubricant in its proper place. Pressure lubrication is made possible by a drilled axle, equipped with nipple or flush type fitting, as desired. Twelve ⅜ inch diameter hardened steel balls permit a continuous load capacity of 600 pounds per roller. Featured in this bearing is the new Mathews Gearlock Cone and Axle, a patented design which firmly holds cone and axle together. Gear teeth on the inside of the cone and knurling on the axle prevent the cone from turning on the axle, a common fault which causes a drop or uneveness in the rollers of ordinary conveyer. Just off the press is the booklet, "New and Improved Features In Mathews Gravity Roller Conveyer." Write for a copy of this booklet today.

## MATHEWS CONVEYER SYSTEMS

Mathews Conveyer Company, 142 Tenth Street, Ellwood City, Pa. . . . Birmingham . . . Boston . . . Buffalo . . . Charlotte . . . Chicago . . . Cleveland . . . Dallas . . . Denver . . . Detroit . . . Los Angeles . . . Milwaukee . . . Minneapolis . . . New Orleans . . . New York . . . Philadelphia . . . Pittsburgh . . . St. Louis . . . San Francisco . . . Seattle . . . Mathews Conveyer Company, Limited, Port Hope, Ontario

ings. These examples of its use indicate that even the most complicated problems can be solved by the use of charts developed with this method.

## Offers Three Cash Awards

To find a practical method for measuring the efficiency and proving the value of the purchasing department, the National Association of Purchasing Agents Inc. is offering three cash awards totaling $1500. The competition is being conducted under the rules of the National Association of Cost Accountants and is open to members of both organizations.

The winning discussion must include form and composition of reports of purchasing departments to management, and basis for bonus or premium award to purchasing executives or purchasing department. The competition closes May 20, when the manuscripts submitted will be reviewed by a committee of three judges. Rules of contest may be had by addressing the association at 11 Park place, New York.

## Will Publish Treatises

Many papers, articles and books devoted to engineering topics have proved too extensive for publication in periodicals or proceedings of engineering societies, or in other journals, and of too specialized a character to justify ordinary commercial publication in book form. In order to make these works available to the profession, the Engineering Societies library, 29 West Thirty-ninth street, New York, has completed arrangements for the publication of a series of technical treatises to be known as Engineering Societies Monograms. The first volume projected for the series is entitled "Plasticity," by Dr. A. Nadai, research laboratories, Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa.

# Design of Electric Hoists Progresses with Manufacturing Methods

ELECTRIC hoist manufacturers have kept well in step with manufacturing methods, providing more modern frictionless bearings, heat treated wearing surfaces, better alloys and more modern design throughout. This fact was established by a recent survey of certain industries in the New England states made by H. J. Fuller, materials handling engineer, Stamford, Conn., and explained at a session on hoists and monorail handling, of the National Industrial congress in Cleveland, April 13-17.

Dampness in paper mills no longer affects the electric hoist with modern installation, the speaker contended. In this industry clearing the overhead spaces of belt drives makes more practical the use of overhead cranes, monorails and electric hoists as auxiliary equipment to disassemble paper machines for repair or renewal of wearing parts. Paper sheeting machines fed by two to eight rolls require electric hoists for putting the rolls into their various bearings.

In some of the systems of dyeing as used in the textile industry, Mr. Fuller stated, the electric hoist is used regularly; in others it has strong competition with hand blocks and air hoists, and in still others much more elaborate hydraulic and air systems have been introduced to avoid the use of what was at one time an unsatisfactory unit in the electric hoists. Another place in this industry for modern methods calling for electric hoist equipment, is for lifting goods in and out of the boiling-off vat.

In the machine tool industries motorizing of machine tools used by makers of that equipment has given more headroom and made possible the servicing of several tools by one electric hoist. In many cases electric hoists have been put over machine tools because the operator of the modern machine tool becomes an expert and high-price man and a modern pushbutton type is a great advance over the hand-operated chain block. One of the trends in the machine tool industry, cited by Mr. Fuller, that adds to the use of electric hoists is an increased weight of machine tool, partly due to the addition of electric motors and partly to the more automatic operation of modern machine tools.

### Hoists Needed in Foundries

A branch of the foundry industry that calls for the use of electric hoists is cupola charging. The introduction of the electric furnace has introduced the electric hoist and motor-driven trolley to take care of the bull ladle. In the railroad shop the trend is in favor of the electric hoist, the speaker concluded.

Standard track treads on monorail installations should be given consideration in order to show greater flexibility, according to J. R. Hooper, who as joint author with A. A. Bureau, both associated with the Hawthorne plant of the Western Electric Co., Chicago, discussed the uses of monorails in this plant. He emphasized the desirability of further development of oil-retaining trolley bearings for high-temperature work and urged the monorail manufacturer to recommend in his specifications the type of superstructure for the installation.

## To Exhibit Mechanical Handling Devices

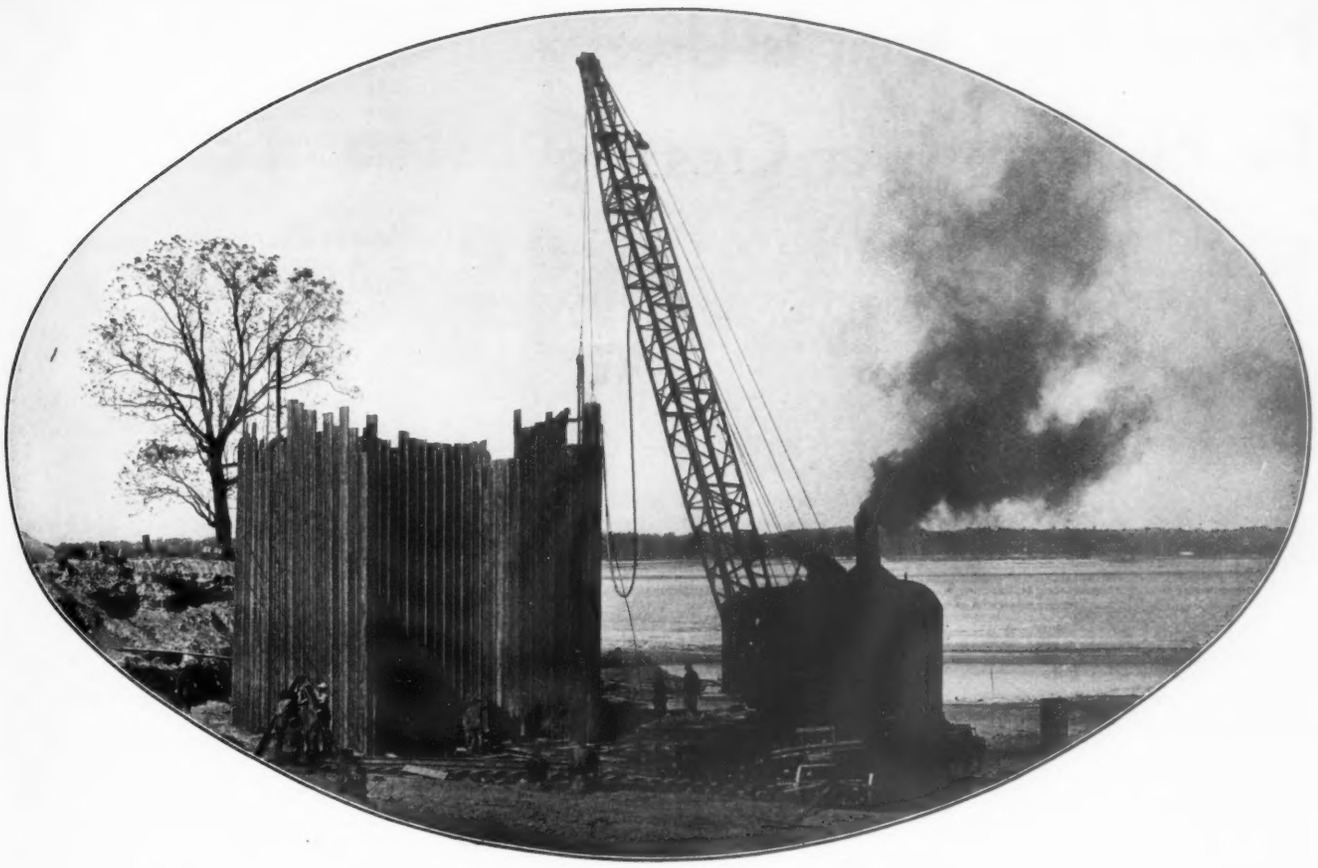
Coincident with the annual meeting of the American Society of Mechanical Engineers in New York, Nov. 30-Dec. 5, will be held the first National Exposition of Mechanical Handling, conducted under the same management as the National Exposition of Power and Mechanical Engineering and other national exhibitions, and occupying three floors in Grand Central Palace.

This is the initial attempt at staging an exhibition devoted exclusively to this special subject and it is believed that it will prove popular with builders of mechanical handling equipment. In scope the show is designed to include all motions of man to move materials from the first attack upon national resources for raw materials, on through the manufacturing and refining processes to the finished product.

Grand Central Palace affords facilities for every type of material handling equipment. Large and heavy installations will be accommodated on the main floor; conveyor systems, cranes, tramways and other overhead equipment, requiring spacious area and considerable height can be installed and operated in the large court of the main and mezzanine floors. Exposition headquarters are being maintained in Grand Central Palace. Charles F. Roth is manager.

## Arranges Cost Conference

All sessions of the twelfth international cost conference of the National Association of Cost Accountants to be held at the William Penn hotel, Pittsburgh, June 15-18, will deal with the discussion of profit making management. The technical sessions of this conference will examine past methods of an actual business, the results of which will be reflected in reports presented at the opening session. The remainder of the sessions will develop the most modern ideas of management for the salvation of this business. The entire program will be a thorough study of a single business, developing ideas that are applicable and profitable to any business.



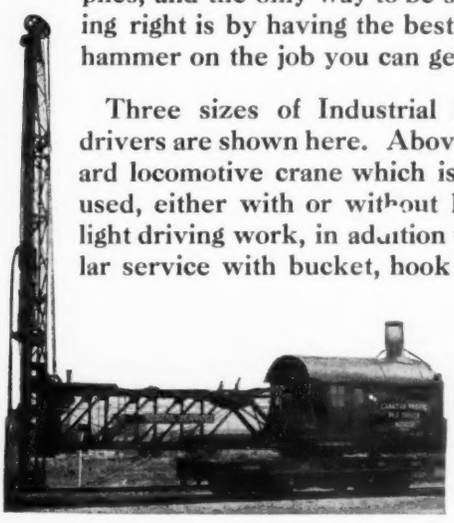
# Having a Good Driver Is Half the Job

Well begun is half done. This saying is particularly true when you are driving piles, and the only way to be sure of starting right is by having the best driver and hammer on the job you can get.

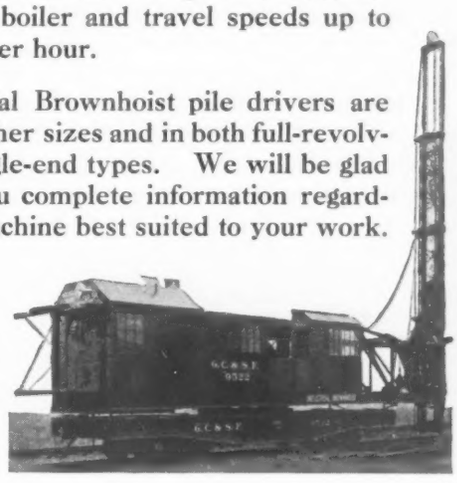
Three sizes of Industrial Brownhoist drivers are shown here. Above is a standard locomotive crane which is commonly used, either with or without leaders, for light driving work, in addition to the regular service with bucket, hook or magnet.

The illustrations below show two heavy-duty, full revolving drivers. Both are suited for either straight or batter driving and the machine at the right has a locomotive type boiler and travel speeds up to 20 miles per hour.

Industrial Brownhoist pile drivers are built in other sizes and in both full-revolving or single-end types. We will be glad to give you complete information regarding the machine best suited to your work.



Industrial Brownhoist steam pile hammers are double acting, using steam to raise the ram as well as to increase the force of the down stroke. These hard, rapid hammer blows are much more effective than those of single acting or gravity drop hammers.



Industrial Brownhoist Corporation, General Offices, Cleveland, Ohio

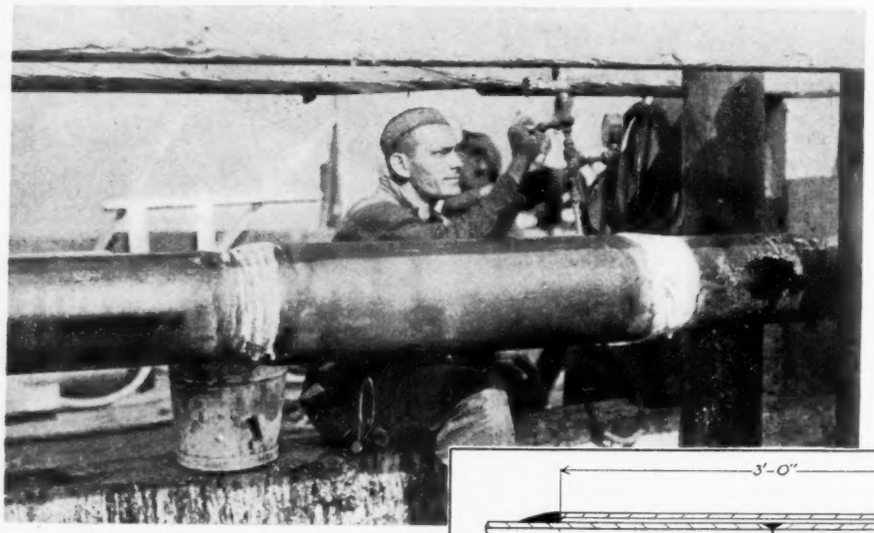
District Offices: New York, Philadelphia, Pittsburgh, Detroit, Chicago, New Orleans, San Francisco, Cleveland.

Plants: Brownhoist Division, Cleveland; Industrial Division, Bay City, Michigan; Elyria Foundry Division, Elyria, Ohio.

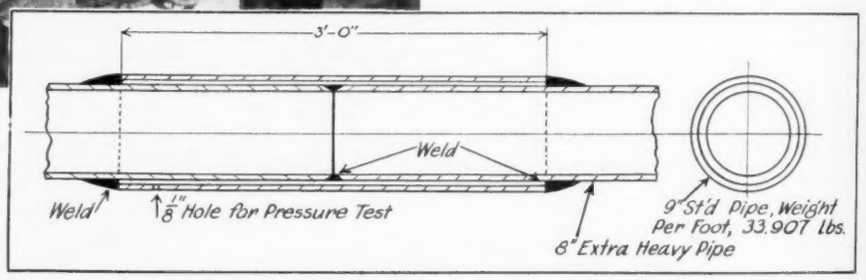
# INDUSTRIAL BROWNHOIST

# Novel Pipe Joint Is Used for Hudson River Crossing

NECESSITY for extra strength at joints, and the construction of joints which would require no attention once they were installed created some novel problems in the construction of an 8-inch gas line crossing the Hudson river from Beason to Newburgh, N. Y. This line, recently completed by the Central Hudson Gas & Electric Corp., crosses the river at a point where it is over a mile wide. The line is of extra heavy pipe, designed for an ultimate pressure of 100 pounds per square inch and at present carrying a pressure of 45 pounds per square inch. All joints were welded by the oxyacetylene process, the work having been done on a barge and the pipe lowered away into the river bed as the welding progressed and the barge was moved forward.



*One of the welders testing a completed joint is shown above. To the right is a sketch of the arrangement of welds in the joint*




### Unique Joint Designed

A type of joint having several interesting features was designed and used for this river crossing. As shown in the accompanying sketch, the joint consists of a standard butt weld reinforced by a short piece of 9-inch standard pipe which fits over the butt weld and is welded to the pipe at both ends with fillet welds. This type of joint has several advantages. In the first place, it stiffens the pipe joints against bending stresses, which may be severe at times during the laying of the pipe from the barge. The sleeve also provides an extra factor of safety since two welds would have to prove defective before leakage could occur at any joint. Possibly the greatest advantage of this type of joint, however, is the time and trouble saved in testing the joints.

### Compressed Nitrogen Used

Each of the 9-inch pipe sleeves was provided with a hole threaded for a ⅛-inch pipe nipple. Because an air compressor capable of providing the high test pressure required was not available, compressed nitrogen was used for testing. This was supplied at 1800 pounds pressure in cylinders similar in shape to oxygen cylinders.

Testing procedure was as follows: A cylinder of compressed nitrogen was connected to the 5/32-inch annular space between pipe and sleeve by means of ⅛-inch pipe fitted with a valve and pressure gage. The pressure was brought up to 350 pounds per square inch and soap suds were painted on the sleeve welds. If the pressure dropped and no leaks in the sleeve weld could be detected, this would indicate that the center butt weld was faulty, but this did not happen once during the entire operation. The annular space had a volume of about 1/10 cubic feet and only nine cylinders of nitrogen were used in testing 163 joints. The accompanying illustration shows one of the joints undergoing test.

## Power Plants Improving Fuel Efficiency

Electric public utility power plants are well in the lead in the remarkable progress made in average fuel efficiency in recent years, according to the bureau of mines, Washington. Average consumption of coal by these plants in 1902 amounted to 6.4 pounds per kilowatt-hour, whereas preliminary figures for 1930 show the amount to have dropped to 1.62 pounds.

From 1902 the coal consumption fell steadily, reaching 3.47 in 1917. The period of fuel shortage from 1917 to 1920, when many plants were forced to use inferior coal from unaccustomed sources, caused a temporary slackening of the rate of improvement, but since the war the curve has continued its downward course unchecked. Consumption in 1929 was 1.69 pounds per kilowatt-hour.

Factors contributing to the savings include replacement of reciprocating engines by turbines, development of mechanical stokers, rise of pulverized fuel, higher steam pressures and temperatures, heat saving devices, rapid expansion which made possible replacement of obsolete units, diversification of load, interconnection of systems, and increasing size of plants.

## Will Dedicate Building

The new mechanical engineering building at the University of Wisconsin will be formally dedicated June 22. The faculty of the engineering college will be hosts to the Milwaukee Engineers' society at a banquet in the evening. On the following day the oil and gas division of the American Society of Mechanical Engineers will open a four-day meeting in the new building.

# World's Fair Building Has Cable Suspended Dome

AMONG the buildings being planned and erected for the Chicago Century of Progress exposition in 1933, the Travel and Transport building thus far presents some of the most interesting features in the use of structural steel. Outstanding in this structure is a 200-foot dome suspended by cables from a circle of 12 steel-braced columns, each 150 feet high.

The dome section of the building is almost detached from the 1000 x 145-foot main structure, and provides an inside height of 125 feet, and a circular room free from columns. The dome area is to house a gigantic exhibit of locomotives on a turntable arrangement.

The circular structure is inside the ring of 12 steel towers, shown in the accompanying illustration. The towers have their rocker bearing and the tops in a circle of 212-foot diameter. Attachments are mounted on the tops for the suspension cables and for the anchor of backstay cables, the roof being supported on the principle of the suspension bridge.

**Anchorage in Reinforced Concrete**

Around the base of the braced columns will be a structure 25 feet high and about 300 feet in diameter, inclosing the backstay cables at their connections to the anchorages. Each anchorage is a reinforced concrete block approximately 30 x 21 feet, and from 9 to 11 feet thick. Embedded in each is a steel anchor frame at the same slope as that of the cables. In the tops of the frame members are holes for pin connection to open sockets and turnbuckles for cable attachment.

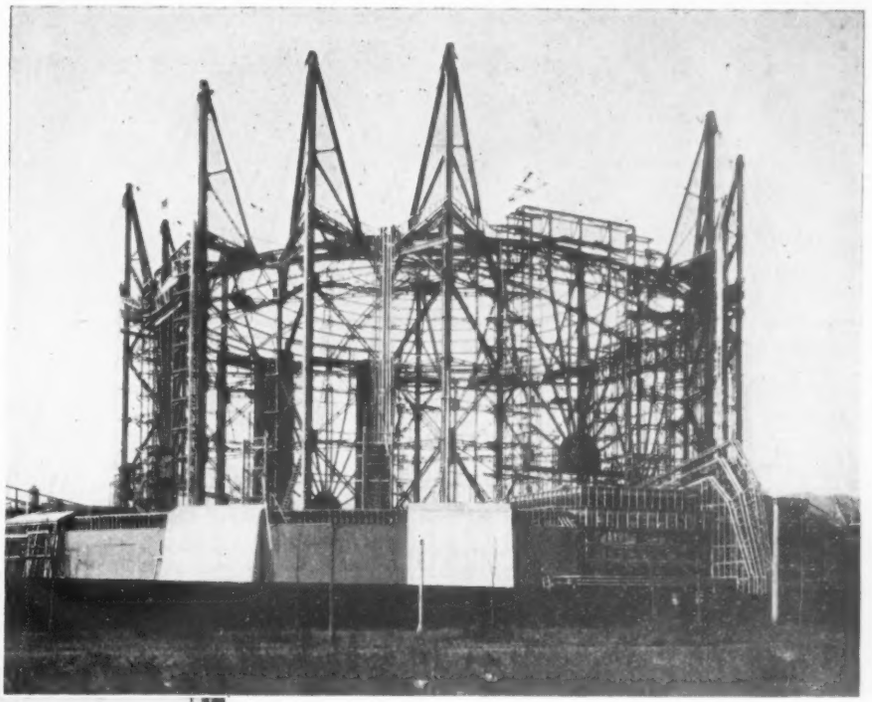
The wall, like that of the rectangular exhibition area of the structure, is of light gage cold-rolled steel in vertical channels, flanges inward and clipped to horizontal girts. Much effort has been expended to keep the building cool in the summer, as a result of which insulation board inside the channels produces corresponding air flues in the walls.

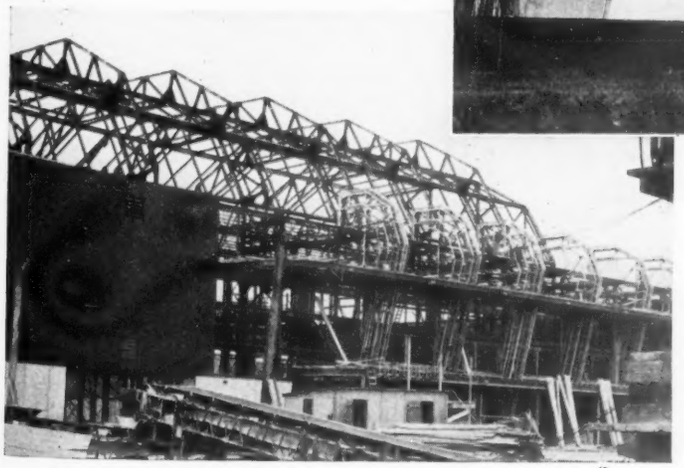
The supporting towers or columns are arranged in three groups or quadrants. Portal trusses connect the groups. Each tower has a main column with the section of a cross formed by one large I-beam and two smaller beams with their flanges riveted against the web. The dome framing consists of radial 16-inch I-beams curved vertically to a rise of 19 feet, and connected by I-beam purlins riveted between the webs of the radial beams or rafters.

Suspension cables from the towers span the enclosed circular space with a sag of 25 feet. In addition to the radial cables attached directly to the towers are two shorter cables on the center lines between the quadrants or column groups. Each end of the latter is carried to a pair of towers by diagonal cables. The steep inclination requires more and heavier cables than the ordinary suspension system.

In addition to the interesting appearance, the design was chosen as a matter of economy in the elimination of heavy steel arch-rib construction with its high cost of centering for erection. Problems included the provision for a circular structure of the desired size and accommodation of a large amount of standard exhibition space.

The world's fair buildings are to carry the message of new construction details affecting uses of steel and other building metals, and will be the modernists' dream in mass effects, broad planes and color tones, according to promoters of the exposition.





*TRAVEL and Transport building for Chicago World's Fair, now under construction, will feature modernistic ideas. (Above)—A 200-foot dome is suspended by cables from 12 steelbraced columns 150 feet high. (Left)—Unusual construction also is used in the 1000 x 145-foot main structure of the building*

## Steel Founders Establish Consulting Service

A development engineering department with an experienced metallurgist and engineer in charge has been established by the Steel Found-

# Production Figures Improve *when* MORSE Tools do the Cutting

*The Morse Line includes High Speed and Carbon*

- DRILLS
- REAMERS
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- TAPER PINS
- SOCKETS
- SLEEVES

PRODUCTION figures cannot help showing a change for the better when the cutting tools last longer between sharpenings as MORSE tools do.

Careful accounting in thousands of plants has given MORSE Tools full credit for reduced production cost and increased production output.

# MORSE

## TWIST DRILL & MACHINE COMPANY

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ers' Society of America. The principal function of the division will be to develop new uses or new applications for cast steel as well as to serve all industry in a consulting capacity with reference to metal construction problems, where cast steel is being or can be used.

This consulting service is offered without bias and without charge to mechanical engineers, machine and equipment designers, and others responsible for specifications of materials and their proper utilization in metal products. Inquiries should be addressed to Development Engineering Department, Steel Founders' Society of America Inc., 420 Lexington avenue, New York.

## Exchange Paper Authors Named

American Foundrymen's association will exchange papers with English, French and Australian foundrymen's associations this year and will present a paper to the European foundry congress to be held during September. No Belgian exchange paper will be prepared as that association is not meeting this year.

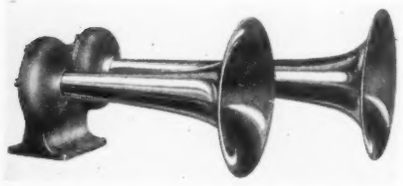
The exchange paper to the Institute of British Foundrymen will be prepared by L. H. Spring, chief chemist, Crane Co., Chicago. The paper to the Association Technique de Fonderie de France will be written by H. M. St. John, metallurgist, Detroit Lubricator Co., Detroit, and that to the Bureau of Steel Manufacturers of Australia by H. P. Evans, metallurgical engineer, Hubbard Steel Foundry division, Continental Roll & Steel Foundry Co., East Chicago, Ind. A. L. Boegehold, metallurgist, General Motors Research Laboratories, Detroit, will be the author of the paper presented to the European foundry congress, to be held in Italy.

## Schedules Annual Meeting

The annual meeting of the Iron and Steel institute will be held at the Institute of Civil Engineers, London, May 7-8. Additional meetings will be held May 11 at the Cleveland Technical institute, Middlesbrough, and May 14 at the Chamber of Commerce, Birmingham, England. The autumn meeting of the institute will be held in Swansea, S. Wales, Sept. 29 to Oct. 1. Technical sessions are scheduled during the morning and plant visitations during the afternoon of each day.

# Air-Operated Signaling System Serves Midwestern Steel Mill

AN INTERESTING air signaling system, recently installed in the new beam mill of a midwestern steel plant, includes a number of pneuphonic horns supplied by the Westinghouse Traction Brake Co., and compressors



*One of the many types of pneuphonic horns used for air-signaling systems in steelworks*

that furnish air for the horns apart from the general mill supply.

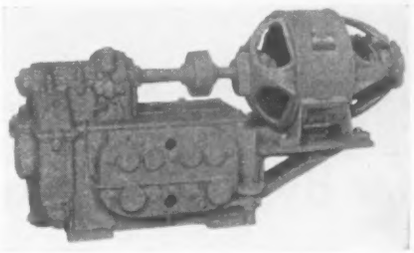
This type of horn, said to have characteristics that make it particularly suited to steel mill application, consists of a counter-balanced metal diaphragm enclosed in a sturdy weatherproof housing, and a bronze bell. Air entering the housing and escaping through a restricted outlet causes the diaphragm to vibrate rapidly. These vibrations release air waves that are greatly amplified by resonance in the bell, producing a pleasing sound of tremendous carrying power with low air consumption. The deep tone signal is clearly audible at a great distance but produces no ear-splitting annoyance nearby. It needs no adjustment and requires no attention.

### Signal Tones Varied

Horns are located at the soaking pits, at the shears, in the motor rooms, at the rolls, saws, furnace room, etc. The necessary wide variety of signal tones is accomplished by the use of several sizes of horns in single units and in pairs. For example a smaller horn is used first with a short bell, then with a long bell, and then the two are combined to give a chime effect. Also a larger horn of deeper tone is used with two different lengths of bell singly, and then in pairs. Thus there are available several distinct alarms to signal for the various operations throughout the mill, as well as to summon the personnel when necessity arises.

For the 16 horns on this particular mill, air is supplied by two Westinghouse-National motor-driven compressors, located in one of the motor rooms. Just outside the motor room are located the main reservoirs from which the supply line runs to the horns. Smaller reservoirs are located at different points to supply additional air volume for operating those horns that are at the extreme ends of the signal system. Most of the horns are remotely-controlled by magnet valves and push button switches, but a few are operated directly by a whistle valve and signal cord.

The air compressors are of the duplex horizontal cylinder, single-stage, single-acting type, with water-cooled cylinder head, and driven through efficient herringbone gear and pinion by a 250-volt direct-current motor. This compressor has an automatic lubricating system with but one place for oil refilling. The inlet and discharge valves are of the latest flat washer type, and an unique device is incorporated in the design to unload the compressor during the starting cycle.



*Compressor used to supply air for a group of pneuphonic horns in a midwestern steelworks*

The air compressors operate on the start and stop method of control, employing a multiple step starter, (having overload protection and low-voltage release) with a pilot governor that closes the circuit at low pressure and opens the circuit at high pressure. With the two-compressor installation, as for example at the beam mill, the pilot governors are set in sequence so that one compressor will cut in at 95 pounds and continue to supply air alone unless the pressure falls below 90 pounds when the other compressor will cut in to assist the first. Both machines cut out when the pressure reaches 110 pounds. The governor settings are reversed occasionally to equalize the work on the two compressors.

Other horns, with individual compressors of the same type mentioned, are located in two of the blooming and structural mills. In the near future the plate and slab mill also will be equipped with similar signals. At other points in the plant and yard pneuphonic horns are used as warning signals at mixers, converters, and on the ore bridges.

# Installs All-Welded Steel Plate Tank for By-Product Storage Purposes

ONE of the largest all-welded steel storage tanks for use in the steel industry recently was completed at the plant of the Donner-Hanna Coke Co., Buffalo. The tank is 75 feet diameter and 35 feet high and weighs 240,000 pounds. The bottom is fabricated of ¼-inch plates. The first ring of the vessel is made of ½-inch plates, the top ring of ¼-inch stock and the intermediate rings of graduated thicknesses between ¼ and ½-inch. The roof, which is made of 3/16-inch plates, is supported by structural steel framework. All vertical seams in the shell are welded on the interior and exterior and the remainder of the tank is welded on one side only. No leaks developed when the tank was filled completely with water. The unit was built by the Buffalo Tank Corp., Buffalo.

## Foundry Industry Preparing for Chicago Convention

(*Concluded from Page* 41)

trol, the committee on foundry sand research has formulated a four-session shop course on this subject to give the practical foundrymen instructions in the fundamentals necessary when sand control is being started in a medium or small shop. Four subjects, one of which will be taken up each day, are moisture control, permeability, and fineness control, strength control, and sand losses.

An innovation for the association's conventions will be the round table meeting on pattern production. A series of questions have been submitted for discussion at this meeting, which has been scheduled for Tuesday morning.

In addition to the session on apprentice training, which is scheduled for Wednesday afternoon, the apprentice training committee will again have on display the patterns and castings made in the local apprentice contests, which have been held throughout the country. First, second and third prizes will be given to the best entries in each of three groups; namely, patternmaking, gray iron molding, and steel molding.

The committee on foundry sand research will have on display a working exhibit showing equipment and apparatus which has been developed for the testing and control of foundry sands. Practically all the equipment described in the 1930 edition of "Test and Grading Foundry Sands," as issued by the committee, will be shown.

**Develop New Equipment**

During the present period of industrial depression, manufacturers of foundry equipment have directed energy toward developing new equipment and improving present machines. Results of the past year's experimental work, in many instances, will be shown for the first time in the exhibition of foundry equipment and supplies, to be held in the Stevens hotel in conjunction with the convention of the American Foundrymen's association.

While the 1930 exhibit will be patterned after the previous display in the exhibition hall of the Stevens hotel in 1929, additional floor space has been provided in the ballroom of the hotel, so that a wider variety of equipment and supplies may be shown. In addition to about 150 commercial displays, exhibits will be maintained by the Gray Iron institute, American Society of Mechanical Engineers, American Standards association and the National Founders association.

## Oil Burner Association Re-Elects Officers

With 26 companies exhibiting, the annual exposition of the American Oil Burner Association Inc. at Philadelphia last week was the largest in the history of the organization.

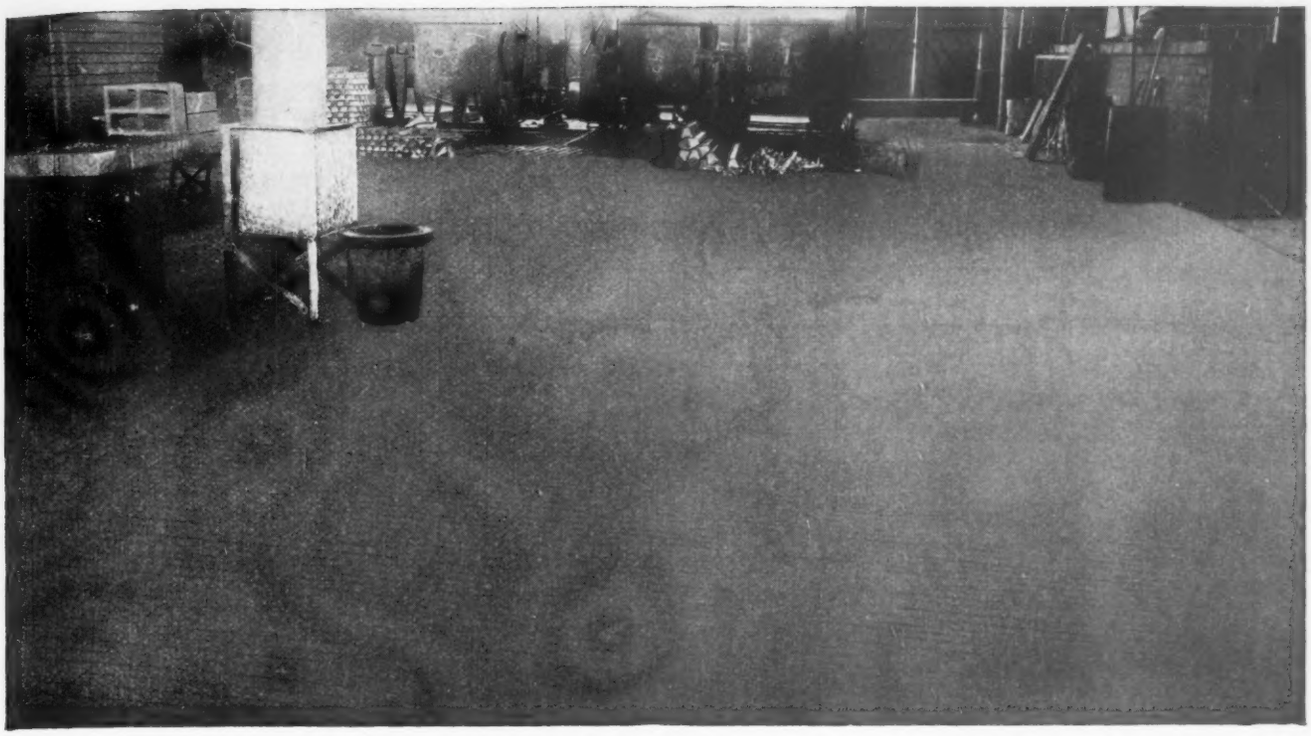
All officers elected a year ago were re-elected for the coming year. These were: President, Walter F. Tant, president, Silent Automatic Corp., Detroit; vice presidents, W. J. Smith, Cleveland Steel Products Co., Cleveland; J. H. Hirsch, Automatic Burner Corp., Chicago; W. C. McTarnahan, Petroleum Heat & Power Co., New York and Stamford, Conn.; Haldeman Finnie, Timken-Detroit Co., Detroit; W. F. Schroeder, Schroeder & Curry, St. Louis; and executive secretary, Harry F. Tapp, New York.

## Taylor Society To Discuss Problems of Planning

Planning will be the general theme of the annual meeting of the Taylor society, to be held at Benjamin Franklin hotel, Philadelphia, April 30 and May 1.. Production planning will be discussed by Ralph E. Flanders, manager, Jones & Lamson Machine Co., Springfield, Vt., and two illustrative cases of production planing, in a medium-size plant and in a small plant, will be outlined by representatives from these companies. Planning as applied to sales, labor and office work will be covered in papers, as well as discussion of national and international planning problems. A dinner meeting has been arranged for the evening of May 1.

## Develops New Alloy Steels

Three new grades of cast alloy steel have been introduced recently by the Los Angeles Steel Casting Co. Ltd., 2444 S. Alameda street, Los Angeles, and are known as Al 20, Al 30 and Al 40. The new types have lower tensile strengths than the company's special steel known commercially as Nikeladium and were developed to present various combinations of strength and toughness.



A view of part of the installation of 2,651 square feet of Mitco Armorgrids (Type D with 1" rectangular openings) in the foundry melting room floor of United States Aluminum Company, Cleveland, Ohio.

# Cracks...Cracks...*and More* Cracks!

CONSTANT heavy trucking of loads of castings, ingots and similar material was too much for ordinary flooring to withstand in the foundry melting room of the United States Aluminum Company, Cleveland. In one place after another, cracks continually developed.

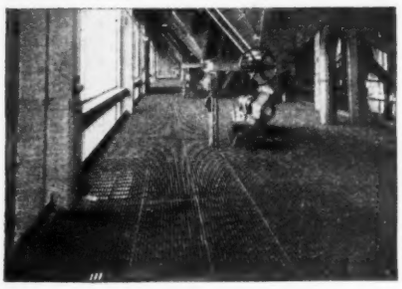
"Rebuild for permanence" was the order of the plant officials. The floor was chipped off to the rough base. Panels of Mitco Armorgrids were laid on the floor base and leveled up. The finishing fill of cement was poured into the rectangular mesh of Mitco Armorgrids.

You see part of the finished floor in the illustration above. Not a crack, not a sign of wear, after months of service. The rail-like steel mesh of Mitco Armorgrids absorbs the brunt of shock and wear. Cracks cannot develop. Potholes and depressions cannot form.

Wherever under-foot surfaces must have unusual stamina and endurance, build for permanence by armoring with Mitco Armorgrids. Their cost is surprisingly low, their economy quickly apparent in reduced repair work and lowered maintenance costs.

May we tell you more about the economy of armoring your floors, platforms, ramps and driveways with Mitco Armorgrids? Write us, and ask for a copy of the Mitco Armorgrid bulletin.

## HENDRICK MITCO GRATING



Where light and ventilation from one floor level to another are essential, Mitco Interlocked Steel Grating makes the ideal open flooring. Its panel area is 90% open, thus assuring maximum light and ventilation. Moreover, Mitco Grating is non-slipping and non-clogging, high in strength and rigidity. May we send you a copy of the Mitco Grating bulletin?


HENDRICK MFG. CO.

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'Phone: COrtlandt 7-2440

Pittsburgh Office: Koppers Bldg.

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***Makers of Mitco Shur-Site Treads, Hendrick Perforated Metal Screens and Elevator Buckets, Hendrick Perforated Metal Grilles and Light and Heavy Steel Plate Construction.***

# HENDRICK MITCO ARMORGRIDS

*for longer life from concrete and cement floors, platforms, ramps and driveways*

# Scanning the Technology of Steel

A Digest of Important Developments in Scientific Research, Engineering Progress and Operating Procedure Pertaining to the Production, Processing, Application and Performance of Steel

## Annealing Furnaces

*A comprehensive survey of electric annealing furnaces as applied to all forms of ferrous and nonferrous annealing; a paper presented at the Pittsburgh meeting of the American Institute of Electrical Engineers, March* 11-13, *by J. C. Woodson,* 22 *pp.,* 17 *illusts.*

Advantages of electric annealing furnaces in all types of annealing work are enumerated by the author who points out that regardless of higher operating costs electric furnaces are often favored due to the uniformity and regularity of results obtainable. Equipment for short-time annealing of malleable castings, forging annealing furnaces, annealing furnaces for handling structural and fabricated shapes, furnaces for wire, sheet and strip annealing, pack annealing, and bright annealing are a few of the subjects discussed, together with actual operating costs of a few installations.

Looking into the future of annealing the author sees a rather rapid and extensive expansion of electric annealing, bright and semibright, to wire, sheet and strip mills; the use of artificial furnace atmospheres to obtain better results; more of the large continuous electric furnaces for sheet annealing and normalizing; and a development of the principle of inductive heating in the continuous production of sheet and strip, and also for structural shapes and tubing.

—STEEL, 4-23-31

## Galvanizing Pots

*Heat distribution in gas-fired galvanizing pots, discussed by Wallace G. Imhoff, in Industrial Gas, April* 1931, *p.* 7, 3½ *pp.,* 9 *illusts.*

Uniform application of heat is a deciding factor in the life of galvanizing pots, and its study is complicated by the variation in size, shape and design of pots commonly used. Each case is treated as a separate problem. Two distinct phases of distribution are high heat concentration in small areas and uniform distribution over the entire area both vertical and horizontal. Hot spots mean short pot life. The depth of the pot influences the heat distribution. It was thought by having a deep pot that the dross could collect in the bottom, but under practical conditions such pots quickly burn out at the dross line. A large volume of dross in the pot tends to hold the heat, and since dross is extremely dense, it sweats and raises the temperature above the safe limit; the result is that the pot quickly fails at the dross line.

—STEEL, 4-23-31

## Hoist Maintenance

*What user and manufacturer must do in maintenance and service, that cranes and hoists will deliver most value per dollar invested, by Robert W. Walton, in Maintenance Engineering, formerly Industrial Engineering, April* 1931, *p.* 179, 4½ *pp.,* 4 *illusts.*

The author outlines the various elements of crane and hoist installations that should be inspected regularly, as well as operating technique which will be productive of the longest service from the crane or hoist.

Motors, controllers and starting boxes require much attention due to their constant use. Conductors and collectors, gearing, hoisting cables, cable collars and sockets, electric brakes, foot brakes, mechanical brakes and limit stops, runways, and bumpers, are other items demanding maintenance attention.

Production nearly always depends upon the proper functioning of cranes and hoists and their maintenance is vital. It is better to make one man or department responsible for their upkeep and have him requisition help from other departments, if necessary, than to attempt the policy of dividing supervision of cranes and hoists between electrical and mechanical departments.

—STEEL, 4-23-31

## Heat Treating Baths

*Selection and control of salt baths for heat treating steel, discussed by W. J. Merten, in Black and White, May* 1931, *p.* 11, 2 *pp.*

For most efficient operation of any salt bath, the temperature between immersing the charge and discharging never should vary more than 30 degrees Fahr. and under no condition should solid salt crystals form on the steel parts when immersed in the bath. The ratio of the volume of the bath and its weight to the weight of steel must be large enough to compensate for the heat loss without solidifying any part of the liquid. The use of a salt bath at a higher temperature than is consistent with recommended practice will result in the decomposition of the salt, freeing highly nascent chemical reagents to attack the steel parts and the container, and causing exothermic reaction with the metalloids of steel unstable at the superheat of the salt.

—STEEL, 4-23-31

## Welding of Alloys

*Precautions and procedures to follow in the welding of various kinds of alloys, discussed in Oxy-Acetylene Tips, April* 1931, *p.* 71, 6 *pp.,* 8 *illusts.*

Article presents the technique of welding various alloy steels with oxyacetylene including chrome and chrome-nickel, stainless, austenitic high - chromium, low - chromium, chrome-manganese, molybdenum, vanadium, manganese, and silicon-manganese-chromium steels; silicon irons; aluminum and its alloys; nickel and monel metal; copper and its alloys; and, brasses and bronzes.

—STEEL, 4-23-31

## Conveyorized Handling

*Description of a conveyor system installed by a manufacturer of grinding wheels to reduce handling costs, by B. A. Hildebrant, in Factory and Industrial Management, March,* 1931, *p.* 403, 3 *pp.,* 6 *illusts.*

Quicker deliveries, lower costs, steadier flow and smaller inventories resulted from installation of a system of conveyor handling by the Norton Co., Worcester, Mass. Problems in handling grinding wheels on conveyors were solved by the use of pallets with load capacities up to 400 pounds.

A changeover was made from bench packing and hand trucking to a completely conveyorized job, resulting in a 34 per cent reduction in the packing and shipping force and an increase in operators' earnings of 20 per cent. A number of reciprocating elevators and a selective elevator of the swinging tray type are used for interfloor movements.

—STEEL, 4-23-31

# Machine Tools and Plant Equipment

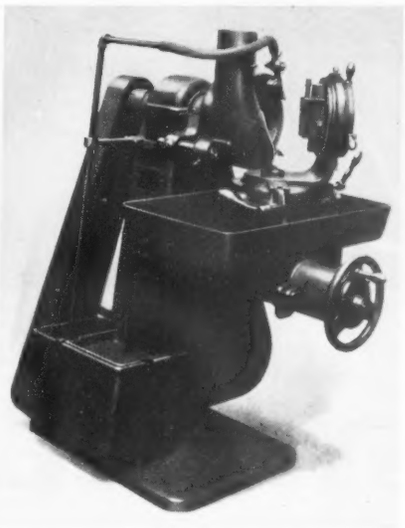
«Without machine tools modern machinery could not be built.»
—Joseph W. Roe

## Tool Grinder Is Improved for Tungsten Carbide

Gisholt Machine Co., Madison, Wis., has brought out an improved grinder for giving correct rake and clearance angles to single point tools used on lathes, turret lathes, planers, boring mills, etc. This machine, which is shown in the accompanying illustration, is adapted for grinding tungsten carbide tools, as well as those of high speed steel.

To give the light, even pressure necessary in grinding tungsten carbide tools, there is incorporated into the spindle design a spring cushion ball thrust bearing. As the wheel is held against the tool by spring pressure only, this pressure cannot become dangerous to the tungsten carbide. When other varieties of tools are being ground, this cushion device is locked out of action so that heavier cuts can be taken.

The wheel mounting is such that wheels can be removed and replaced readily, which encourages the use of the most efficient wheel for each job. At the wheel end of the spindle a labyrinth is employed to protect the bearings against tungsten carbide dust and other harmful abrasives. Both front and rear bearings are provided with oil gages. The wheel guard is of heavy construction and can be connected directly to an overhead dust collection system.



*Gisholt grinder is made efficient on tungsten carbide tools*

◆

## Vertical Speed Reducers Will Leak No Oil

Foote Bros. Gear & Machine Co., 111 North Canal street, Chicago, announces a new line of vertical type worm gear speed reducers which demand no maintenance and which are proof against oil leakage. They are recommended especially for use in chemical, paint and food plants where the slightest leakage of lubricating oil from machinery is likely to contaminate and damage the product.

The design departs from conventional packing glands, oil seals, etc. A bronze worm gear ring is pressed on a splined hollow steel center, being held rigid on this center by two flat ball thrust bearings. This assembly is mounted on bronze bearings, the hollow center being fastened to a vertical shaft, at the uppermost part of the reducer, thus forming a cavity below for nearly four-fifths the entire length of this shaft.

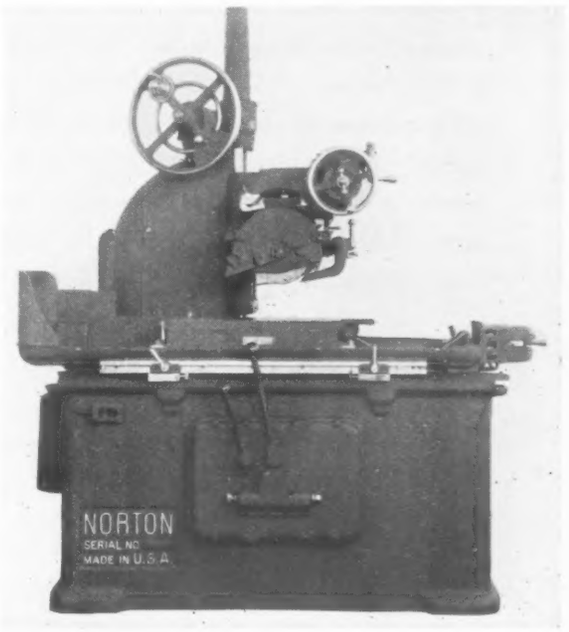
In this space is placed a tube which is sealed and fastened to the lower part of the reducer, from which point it extends upward to a point well above the oil level. The top of this tube is covered by the steel center of the worm gear. This arrangement positively prevents any oil leaking out, and forms two chambers, in one of which the worm gear operates and in the other of which the vertical shaft rotates—free from contact with oil at all points.

◆

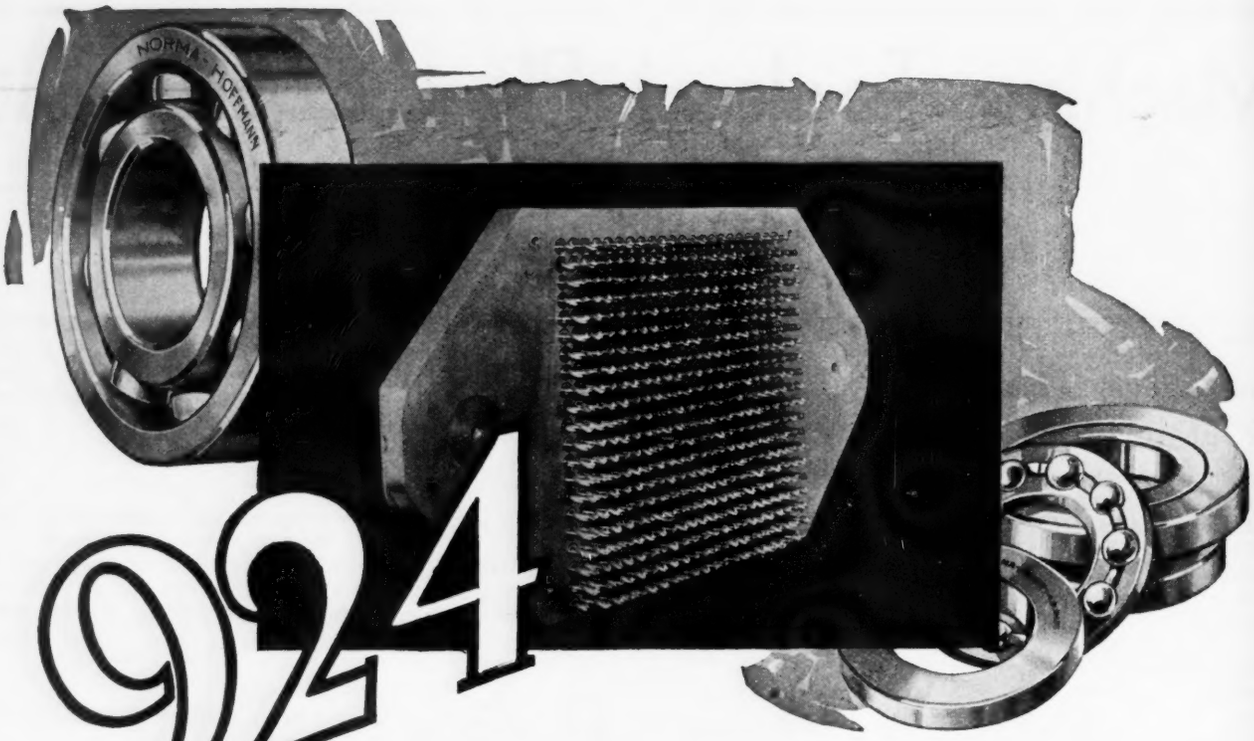
## Surface Grinder Features Hydraulic Control

Norton Co., Worcester, Mass., announces a new surface grinder with hydraulic control. This machine, which is shown in the accompanying illustration, is intended for general tool room and production work. It is of 10 x 12 x 24-inch capacity, without magnetic chuck, and has necessary rigidity and power to handle effectively a wide range of work within these limits. The 10 x 1½ x 3-inch wheel cuts on its periphery, which gives the straight line finish desirable on fine work.

The base is a substantial box type casting inclosing the motor, hydraulic mechanism, and other operating

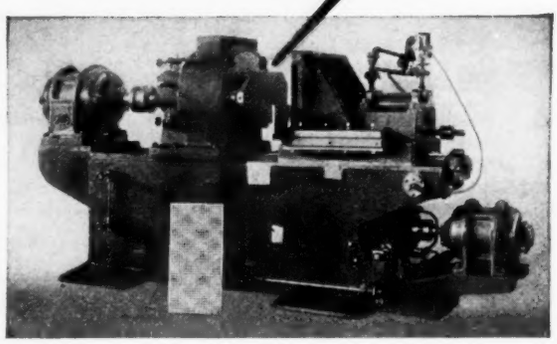



*Surface grinder built by Norton Co. handles a wide range of work, either in tool room or in production shop. Hydraulic control gives precise and smooth action. Desirable straight line finish is given to the work by a wheel cutting on its periphery*




# 924 PRECISION BEARINGS IN THIS MACHINE

IT is built by the Langelier Manufacturing Company of Providence, R. I., for drilling holes in Celotex sound-proofing boards. Each of the 462 spindles in its drilling head, spaced 17/32-inch center to center and turning at 1200 R. P. M., runs on two NORMA-HOFFMANN Precision Thrust Bearings. The small dimensions of these units, coupled with their PRECISION, permit this extremely close spacing with perfect safety against failure. Smooth, quiet, vibrationless running, with reduced power and with the very minimum of attention, characterizes the performance of this unusual machine.



*Regardless of operating conditions, the right PRECISION Bearing rightly applied will minimize the hazard in any bearing problem, and contribute toward longer life and improved machine performance. Let our engineers work with you—their 20 years of highly specialized experience will be helpful. There is no obligation. Write for the Catalogs.*

"NORMA-HOFFMANN"
PRECISION BEARINGS

NORMA HOFFMANN BEARINGS CORPORATION STAMFORD CONN., U.S.A.

parts, the number of which, incidentally, has been reduced to the minimum in this design. A heavy column at the back of the base toward the rear carries the wheel head and its controls.

Ordinarily, wheel traverse is by hand, with one speed for grinding and another for truing, but hydraulic wheel traverse can be furnished on special order. Wheel feed is also by hand, under control of an index graduated to read to 0.00025-inch. The wheel spindle is mounted on ball bearings, this mounting having been found especially desirable on work having interrupted surface. Controls are closely and conveniently grouped and all important bearings are served by a central lubrication system. The coolant tank in the base has capacity of 50 gallons.

The machine has approximate net weight of 5500 pounds and occupies 5 x 8 feet of floor space. It is driven by a standard 7½-horsepower, 1200 revolutions per minute motor.

◆

## Conveyor Belt Idlers Have Tapered Roller Bearings

C. O. Bartlett & Snow Co., 6200 Harvard avenue, Cleveland, announces a new line of troughing and return idlers for conveyor belts. These idlers, one of which appears in the accompanying illustration, are equipped with tapered roller bearings, each of which can be adjusted by a positive screw arrangement without removing the pulleys from their supporting brackets.

Four brackets, mounted on an inverted steel channel, support the three pulleys of the troughing idler. This type of idler provides continuous support to the belt except for ¼-inch gaps between the pulleys. Open tops on the brackets permit any pulley to be removed without disturbing the bracket or adjacent pulley. The single pulley used on the return type of idler is similar to the pulleys of the troughing type. Its brackets, however, are of the hanging type.

**Removable Pulley Shells**

Provision is made for renewing the pulley shells without destroying the cast iron pulley ends. These renewable shells are made from seamless steel tubing, ¼-inch thick and 6 inches in diameter, their uniform thickness insuring a well balanced pulley which reduces belt wear by eliminating slippage.

A single grease fitting serves to lubricate the two bearings of each pulley of the troughing idlers. In the case of the longer return idler pulley, a fitting for lubrication is provided at each end. A central tube prevents escape of grease into the interior, and as the flow of grease constantly is toward the outside, the bearings are flushed as they are greased. Additional bearing protection is given by four-pass metal labyrinth seals.

These new troughing and return idlers are offered in nine sizes, to handle belts ranging from 18 to 60 inches wide.

*Indicating pyrometer control is improved by Taylor Instrument Co.*

◆

## Special Tool Holders Use Tungsten Carbide Bits

Ready Tool Co., Bridgeport, Conn., has put on the market a new type of removable-bit tool holder designed especially for use with tungsten carbide blades.

The head of the tool, in which the blades, or bits, are held in a longitudinal broached hole, is more than ordinarily heavy to absorb any vibration. The blade is supported firmly on the bottom of the broached hole, with lower and side support running out close to the cutting edge. This feature is of great importance, as overhang is undesirable in the case of tungsten carbide. The blade is locked in place by a single set screw in the top of the tool.

The tool is furnished with its head at various angles and offsets to meet the demands of different turning operations in engine lathes, turret lathes and screw machines. The holders can be supplied with heads, broached holes and shanks to meet individual specifications over a wide range.

◆

## Pyrometer Control Device Has Been Redesigned

Taylor Instrument Companies, Rochester, N. Y., has redesigned it indicating pyrometer control, which gives this instrument several new features which add materially to its effectiveness. The accompanying illustration shows the instrument as it now appears.

In the course of redesign a total of three pounds of unnecessary weight have been eliminated. Among other things, a back panel has been made unnecessary, which simplifies wiring and makes installation and removal easy.

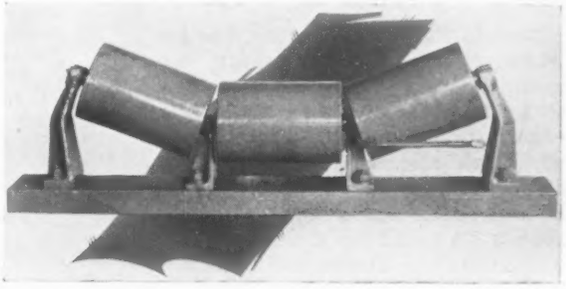
Mechanical changes within the instrument do away with shocks and vibration during its operation, which insures long, accurate life.

◆

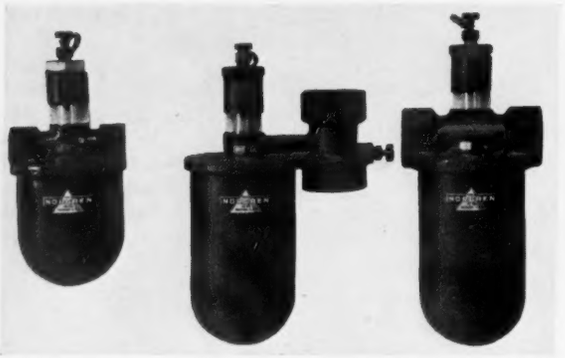
## Air Brake Packing Adapted to Industrial Air Devices

Westinghouse Air Brake Co., Wilmerding, Pa., is offering to the trade a line of composition packing cups suitable for use on a wide variety of pneumatic devices, including operating valves, power and cushioning cylinders, hoists, chucks, clamps, air springs, etc.

These cups are made of the same rubber composition developed by this company for use in cups of its railway air brake cylinders, it having proved under long practical tests to have better mechanical and physical properties than leather and other



*Conveyor belt idlers designed by C. O. Bartlett & Snow Co. feature improvements in bearings and mountings*



*Effective lubrication of pneumatic tools is assured by these automatic devices developed by C. A. Norgren Co., which introduce oil into the compressed air stream*

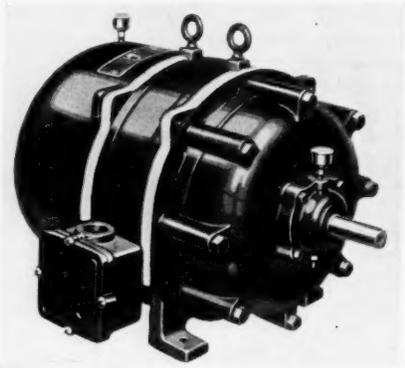
commonly used packing materials. The new cups will withstand oil, moisture and a wide range of temperatures. They are molded to shape in sizes ranging from 1 to 26 inches in diameter, their strength being increased by a re-enforcement of open-mesh cord fabric thoroughly imbedded in the composition.

◆

## Special Motors Overcome Explosion Hazards

Howell Electric Motors Co., Howell, Mich., announces a new motor which meets specifications set forth by the Underwriters' Laboratories for use under conditions where gasoline vapor or lacquer solvent are present in the air. One of these motors appears in the accompanying illustration, this being one having totally inclosed fan cooled frame. Other models are built without the fan, for use where conditions allow.

Polyphase models are of squirrel cage construction, with extra heavy castings, bolts and other details. Fitted surfaces are of ample size to meet the Underwriters' requirements. Single phase models are of similar design, each motor having a condenser starting unit located in a separate box mounted outside the hazardous area.



*Motor designed for hazardous service by Howell Electric Motors Co.*

◆

## Hand Operated Steel Shear Gives Powerful Leverage

Buffalo Forge Co., Buffalo, has introduced an improved shear for medium size flats and rounds. This shear, which is of strong steel plate construction, is built in truck mounted, bench mounted and angle iron stand mounted types, with capacity to shear flats up to 3 x ⅝-inch or rounds up to 1 inch diameter. The accompanying illustration indicates the ease with which the truck mounted shear can be moved from place to place.

The manufacturer guarantees the steel plate frame to be unbreakable under any proper service conditions, in spite of the powerful compound leverage. The shears can be left out of doors without fear of damage by weather. Standard knives can be used on both flats and rounds, although to attain full capacity on rounds, special knives are required. One pipe lever is used both for operating and transporting the truck type shear. This feature is brought out in the illustration at the bottom of this column, which also shows clearly the double type of lever socket which allows the most effective lever position to be chosen.

*Compact and powerful shear with steel plate frame, developed by the Buffalo Forge Co. for hard use either indoors or out of doors on cutting of medium size flats and rounds*

◆

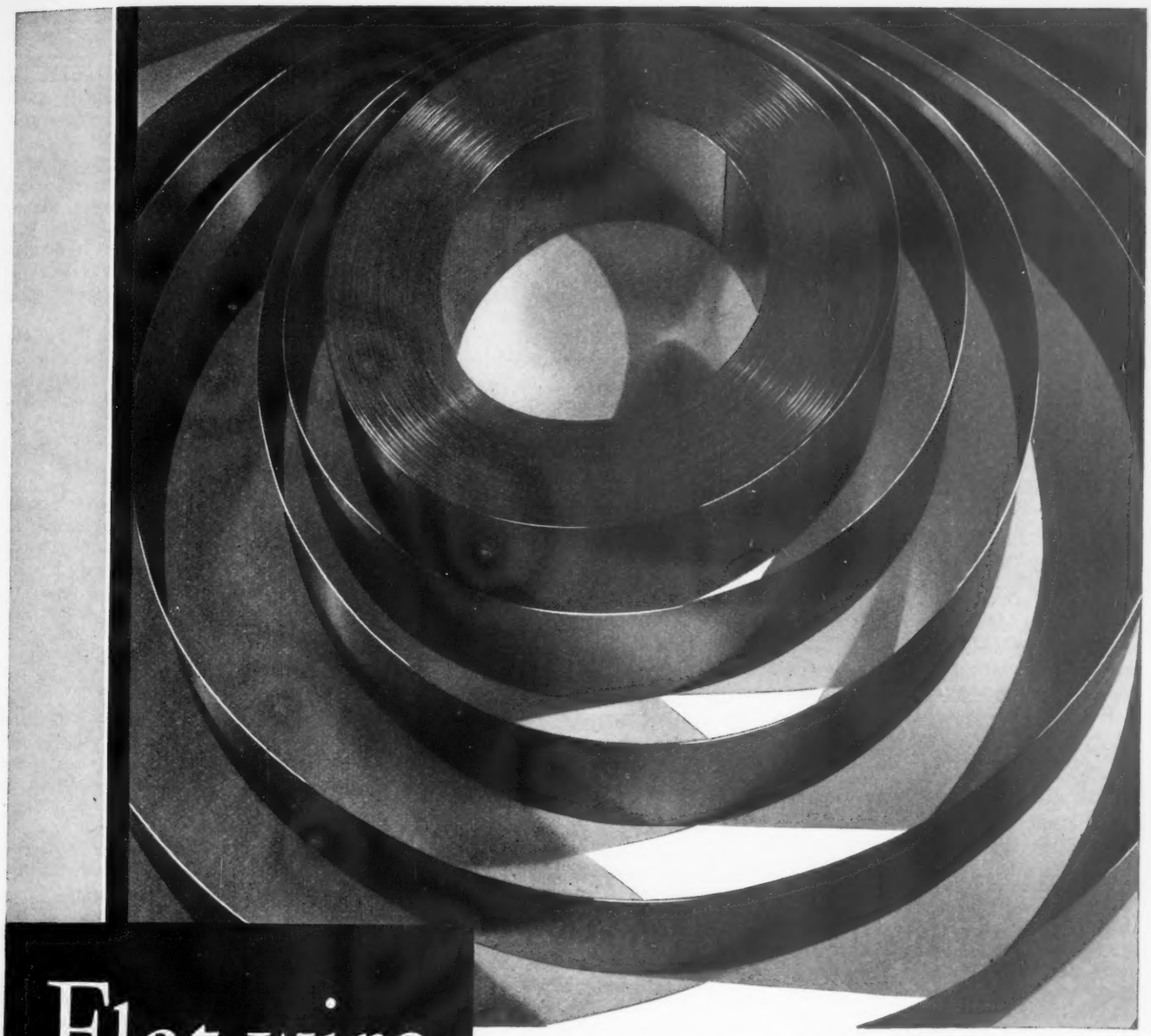
## Air Line Lubricators Save on Tool Maintenance

C. A. Norgren Co., Denver, has put on the market a sight feed automatic air line lubricator for use on lines serving pneumatic tools of various kinds. Three sizes and types of this device are shown in the accompanying illustration.

The lubricators are of brass and bronze construction, with pressed steel reservoirs, and under normal conditions they seldom, if ever, require repair. Oil flow into the air stream is adjusted by means of a needle valve, and oil is fed only when tools are in use. This action is controlled by the air flow through the device and insures adequate lubrication without flooding.

A sight feed gage makes it possible to see exactly how much oil is being fed, thereby making correct regulation by the needle valve an easy matter. Once this adjustment is made, no attention is required except occasional filling of the reservoir, unless tools are changed.

The maker claims that large savings in oil result from the use of these lubricators, as well as savings in maintenance cost of the pneumatic tools through complete and unfailing lubrication of vital parts which otherwise run dry at frequent intervals. The lubricators are furnished in sizes to suit various line conditions, and by using the correct size of device there is no loss of air pressure.



# Flat wire for the *particular*

OUR customers order hundreds of different kinds of flat wire. But common to all of them is this fact:—they are particular.

We attract and hold "hard-to-please" customers because they find that we meet their most exacting flat wire requirements. For years we have specialized in flat wire of the very highest quality and have one of the largest flat wire plants in the country.

Cold rolled high or low carbon steel. Made in various widths, thicknesses and finishes including galvanized and tinned.

JOHN A. ROEBLING'S SONS CO., TRENTON, N.J.

WIRE • WIRE ROPE • COPPER AND INSULATED WIRES AND CABLES
WELDING WIRE • FLAT WIRE • WIRE CLOTH AND WIRE NETTING

*New York Boston Chicago Philadelphia Atlanta San Francisco Cleveland Los Angeles Seattle Portland Export Dept., New York, N.Y.*

# ROEBLING FLAT WIRE

## Mirrors of Motordom

(*Concluded from Page* 33)

cylinder car with 112-inch wheelbase to sell at about $850. The new car is expected to be in dealers' hands within two weeks. Meanwhile, assembly on all models is static at 125 a day, 5 days a week.

Hudson-Essex releases have shown a moderate improvement but the plant production schedules display anything but regularity. On the average, assembly indicates 500 units a day, 4 days.

◆

Cadillac-LaSalle production is unchanged from two weeks ago with 125 to 130 models for all divisions daily, 5 days. Of this number, about 50 are LaSalle, 40 Cadillac 8's, 35 Cadillac 12's and the remainder Cadillac 16's.

Oakland-Pontiac is steady at 550 daily, 5 days, or 2800 a week. Olds has shown a slight tapering and is at 330 daily, also 5 days.

Packard is bringing out a new model with the body materially changed. Output is 80 a day, 5 days.

Willys-Overland continues its step-up of two weeks ago and is at 600 daily, 5 days. Marmon is just getting into production on its 16. Hupmobile holds at 100 models, 5 days. Reo has been improved by some truck business and expects to bring out new truck lines in the late spring; current total assembly is 40 a day, 5 days. Pierce-Arrow unfilled orders are large.

Chrysler will announce refinements in its "deluxe" 8-cylinder lines sometime after May 1. Dealer instructions already have been forwarded.

Chrysler Corp. releases to material suppliers have shown some improvement over the month, impetus being chiefly supplied by Dodge.

One of the Chrysler units—possibly Plymouth—may be expected to have free wheeling shortly, as parts suppliers have received orders for material indicating a free wheeling transmission.

## Austin In Trusteeship

American Austin Co. has one more year to live. A "last gasp" was tried last fall when a loan of $7,500,000 for working capital was attempted from American banks or the mother British Austin Co., but was never completed.

Now, a trusteeship for the company has been formed, effective as of April 1, 1931, and to extend to the same date in 1932. Three trustees represent the creditors' interests, one being the Hayes Body Co., Grand Rapids, Mich., the largest creditor.

When the American Austin Co. was formed it was the intention to produce 15,000 "bantams." Material was ordered in part for this production, but whereas some material was ordered for 15,000 cars, other parts were ordered for only a small percentage of this amount.

The consequence is that today the company finds itself with material in part on hand to make about 5400 Austins, as 9600 were produced from the time the car was introduced. About 300 are on hand at the company's plant at Butler, Pa., the rest, or 9300, have been disposed of to dealers and the public.

Creditors have arranged to advance $200 per car within the next year to finish up the manufacture of the 5400 units. Title to the car is to rest with the creditors until it is sold. The arrangement is akin to a car trust agreement employed by the railroads and street car companies.

This credit advancement program is to cease on April 1, 1932, and it is hoped by then that surplus lines of material will be cleaned up.

## Bantams For the Pampas

Incidentally, it is forecast by one well versed with the company's financial affairs that these 5400 Austins will find their way to South America.

The British Austin Co. had an arrangement with the American Austin Co. to stay away from South American markets when the latter company began. However, American Austins began to make an appearance on the South American roads and engine serial numbers were traced back to a New England distributor. He in turn had been selling to an export company, thus disposing of Austins to a dummy and still not voiding the agreement. The British Austins were selling for $900 in South America at the time; the American Austin for $600. Now it is expected these "clean-up" 5400 units will have a tag of $300 attached to them for early disposal.

◆

A new automobile wheel is being experimented with by a large maker of automobile parts.

With the growing trend to smaller diameters in wheels, so that four manufacturers now have wheels less than 17 inches on their models, and the increased need for stronger and larger brakes on free wheeling transmission equipped models, the logical development is an auto wheel without spokes, the place of spokes being taken up entirely with a brake drum.

The effect is a disc wheel that in construction would give wider seats to the rear of the automobile. Ford and Firestone both have been known to be experimenting with this type wheel, though the motor wheel maker above mentioned is developing it in connection with free wheeling models.

High travelling speeds and such innovations as free wheeling have accentuated the brake problem and made such makers as Cadillac go to a cast iron drum. Some have tried working with cold-rolled strip; the stainless steel manufacturers claims the best lining with as high as 300 per cent longer life; the "combination steel" maker has his eye on supplying stainless veneered steel for brake drums.

Motor manufacturers want a high-carbon steel but one to be worked cold for brake drums, and this has been pointed out by informed interests as an impossibility.

## Gossip from the Plants

Murray Body has been over a year cleaning up one Hupp order, due to retarded operations of the latter company. . . . Hanna Furnace has its other stack all relined and ready to blow in, though probabilities are this operation will be delayed. . . . Briggs Body production has fallen off materially in April, due to restricted orders from Ford. . . . The first shipment of steel from Buffalo to Detroit arrived April 7. . . . Ford has been using stainless steel scrap in his own foundry on production of fittings, instead of shipping it back to the supplier's mill as was his former custom. . . . Packard, with a large foundry, is going into the duplex system of handling scrap. . . . Locomobile Co. of America is an old-timer to pass from the picture with a recent court order to sell the Bridgeport, Conn., plant June 3. . . . The "Steckenberg" is the name of the new rear-engine mounted car, 8-cylinder V-type motor, contemplated for production by "an unidentified manufacturer not connected with the automotive industry" recently in these columns. . . . Water shipment rates on finished steel will be cheaper than in some time this year. The Cleveland-Detroit rate is $1 per ton, Detroit-Buffalo is $2, and Detroit-Chicago is $2.80. . . . A leading manufacturer is promising something radical in bumper construction with the bumpers resembling trusses and structural sections. . . . A trucking interest is reported to have taken 6500 V-type Ford 8-cylinder engines into the Ford Highland Park plant last week. . . Auburn subsidiary manufacturing plants are working on parts for three new Auburn-Cord models. . . . The steamer FELLOWCRAFT has been taking scrap down from Detroit to the American Steel & Wire Co.'s Central furnaces at Cleveland and has been bringing finished steel back from mills of the latter district. . . . That first shipment of 1931 by water into Saginaw, Mich., was core sand for the Chevrolet foundry there.

# Market Undertone Still Cheerful

## Automotive Demand Less Impressive as Ford Plans Shutdown—Pipe Needs Heavier—Operations Off Slightly—New Stabilization Plan for Sheets

ONE of the chief supports of the steel market thus far in 1931—moderate demand from the automotive industry—has been somewhat undermined this week by a decline in the Ford Motor Co.'s requirements. This seems to lend substance to the report that the company will shut down at Detroit for two months this summer while its assembly plants work off a large surplus of parts.

Offsetting this to some extent is a slight improvement in demand for steel pipe, the Jones & Laughlin Steel Corp. having booked 25,000 tons for a Texas pipe line project, and three other projects, each requiring 10,000 to 18,000 tons, approaching maturity.

Up to the present, demand for structural steel has been good, that for the automotive industry has been fair, while pipe line and railroad requirements have been negligible. In the past week this situation has changed slightly, with a slackening in small building awards and inquiries, and in automotive needs.

This moderation has not been wholly compensated for by the slight improvement in demand for pipe. As a reflection of further mild shrinkage in steel requirements, steelmaking operations this week are barely at 50 per cent, a reduction of about 2 points from last week, and a total decline of 7 points from the high mark reached late in March.

Chicago operations are off 5 points to 50 per cent; Pittsburgh off 2 points to 48; the Youngstown district is down 1 to 43 per cent, and eastern Pennsylvania down 1 to 46 per cent. These losses more than neutralize slight gains at Cleveland and Buffalo and an unchanged situation at Birmingham.

Despite the fact this is the fifth consecutive weekly decline in operations, and the apparent further constriction in demand from a majority of the consuming classifications, sentiment appears to be a little more buoyant. There is disclosed this week a more widespread conviction that the slide in production will not carry the industry to as relatively low a point as might be expected in the usual summer decline, and the belief also prevails there is a latent force in demand that will bring an early fall recovery of encouraging proportions.

Prices are fairly well stabilized, if wages are not to be reduced. Though underlying conditions have not changed there is less talk today than two weeks ago regarding the prospects of a reduction in steel wages.

In the absence of any pronounced influence, prices appear to be bounding off, or along, the bottom. In February, STEEL's price composite came to a rest at $31.65, after declining 21 consecutive months. The composite average for March advanced to $31.66, but April will show a slight decline. The figure this week is $31.51, eight cents lower than a week ago.

The slightly easier tendency pertains especially to the lighter lines, which has resulted in pressure on semifinished steel. Heavy finished steel prices are holding rather firmly.

As an effort toward stabilization of sheet prices, a Middletown, O., producer has taken the initiative in establishing new and broader classifications on sheets, regardless of whether they are rolled on continuous or old type mills. Prices are to be announced shortly, effective May 1, and it is believed the plan will become general.

The downward movement in scrap prices is a little more pronounced, reductions of 25 cents to $1 a ton being noted in most districts. Pig iron prices are fairly steady. A Cleveland producer booked 10,000 tons of foundry iron at a reported minimum of $16, base, furnace. Prices of Lake Superior iron ore have been re-established at last year's levels.

Structural steel awards for the week total 20,000 tons, compared with 20,395 tons in the preceding week, and 12,825 tons in the week a year ago. Awards to date this year remain well ahead of last year, amounting to 730,682, in contrast with 530,495 tons in 1930. The market is featured by an inquiry for 110,000 tons for a bridge across the Golden Gate, at San Francisco, Calif.

## Composite Market Averages

Based on Pig Iron, Billets, Slabs, Sheet Bars, Wire Rods, Steel Bars, Plates, Shapes, Black, Galvanized and Blue Annealed Sheets, Tin Plate, Wire Nails and Black Pipe.

| | |
|---|---|
| This week (April 22, 1931) | $31.51 |
| Last week (April 15, 1931) | 31.59 |
| One month ago (March, 1931) | 31.66 |
| Three months ago (January, 1931) | 31.71 |
| One year ago (April, 1930) | 34.44 |
| Ten years ago (April, 1921) | 43.84 |

# Comparative Prices of Iron, Steel and Coke

Representative Market Figures for This Week, Last Month, Three Months and One Year Ago

| | April 22 1931 | 1931 | 1931 | 1930 |
|---|---|---|---|---|
| **PIG IRON** | | | | |
| Bessemer, del. Pittsburgh | $18.26 | 18.26 | 18.76 | 20.76 |
| Basic, valley | 17.00 | 16.75 | 17.00 | 18.50 |
| Basic, eastern del. eastern Pa. | 17.50 | 17.25 | 17.25 | 18.76 |
| No. 2 foundry, del. Pittsburgh | 18.26 | 18.01 | 18.26 | 19.76 |
| No. 2 foundry, Chicago | 17.50 | 17.50 | 17.50 | 19.40 |
| *Southern No. 2, Birmingham | 13.00 | 13.00 | 14.00 | 14.00 |
| **No. 2X, Virginia furnace | 18.25 | 18.25 | 18.25 | 18.25 |
| **No. 2X, Eastern del., Phila. | 18.26 | 18.26 | 18.26 | 20.76 |
| Malleable, valley | 17.00 | 17.00 | 17.50 | 19.00 |
| Malleable, Chicago | 17.50 | 17.50 | 17.50 | 19.40 |
| Lake Superior, charcoal, del. Chi. | 27.04 | 27.04 | 27.04 | 27.04 |
| Gray forge, del. Pittsburgh | 17.63 | 17.38 | 17.63 | 19.13 |
| Ferromanganese, del. Pittsburgh | 89.79 | 89.79 | 89.79 | 103.79 |
| **COKE** | | | | |
| Connellsville furnace, ovens | 2.50 | 2.50 | 2.50 | 2.60 |
| Connellsville foundry, ovens | 3.25 | 3.25 | 3.30 | 3.50 |
| **SEMIFINISHED MATERIAL** | | | | |
| Sheet bars, open-hearth, Youngs. | 30.00 | 30.00 | 30.00 | 33.00 |
| Sheet bars, open-hearth, Pitts. | 30.00 | 30.00 | 30.00 | 33.00 |
| Billets, open-hearth, Pittsburgh | 30.00 | 30.00 | 30.00 | 33.00 |
| Wire rods, Pittsburgh | 35.00 | 36.00 | 35.00 | 38.00 |

*1.75 to 2.25 silicon. For local delivery. Northern shipments based on $11, Birmingham. **2.25 to 2.75 silicon.

| | April 22 1931 | March 1931 | Jan. 1931 | April 1930 |
|---|---|---|---|---|
| **FINISHED MATERIAL** | | | | |
| Steel bars, Pittsburgh | 1.65 | 1.65 | 1.65 | 1.80 |
| Steel bars, Chicago | 1.75 | 1.60 | 1.60 | 1.85 |
| Steel bars, Philadelphia | 1.94 | 1.94 | 1.94 | 2.12 |
| Iron bars, Chicago | 1.80 | 1.70 | 1.70 | 1.95 |
| Shapes, Pittsburgh | 1.65 | 1.60 | 1.60 | 1.80 |
| Shapes, Philadelphia | 1.81 | 1.81 | 1.81 | 1.81 |
| Shapes, Chicago | 1.75 | 1.70 | 1.70 | 1.90 |
| Tank plates, Pittsburgh | 1.65 | 1.65 | 1.65 | 1.80 |
| Tank plates, Philadelphia | 1.80½ | 1.80½ | 1.80½ | 1.95 |
| Tank plates, Chicago | 1.75 | 1.70 | 1.70 | 1.90 |
| Sheets, blue anl., No. 13, Pitts. | 2.00 | 2.05 | 2.05 | 2.25 |
| Sheets, black, No. 24, Pitts. | 2.25 | 2.35 | 2.35 | 2.65 |
| Sheets, gal., No. 24, Pittsburgh | 2.85 | 2.90 | 2.90 | 3.30 |
| Sheets, black, No. 24, Chicago | 2.40 | 2.50 | 2.50 | 2.80 |
| Sheets, blue anl., No. 13, Chicago | 2.20 | 2.20 | 2.20 | 2.40 |
| Sheets, galvanized, No. 24, Chi. | 2.95 | 3.05 | 3.05 | 3.45 |
| Plain wire, Pittsburgh | 2.20 | 2.20 | 2.20 | 2.40 |
| Wire nails, Pittsburgh | 1.90 | 1.90 | 1.90 | 2.25 |
| Tin plate, per base box, Pitts. | 5.00 | 5.00 | 5.00 | 5.25 |
| **SCRAP** | | | | |
| Heavy melting steel, Pitts. | 12.25 | 12.90 | 13.00 | 16.05 |
| Heavy melting steel, eastern Pa. | 10.50 | 10.50 | 10.50 | 13.95 |
| Heavy melting steel, Chicago | 9.50 | 9.75 | 10.00 | 13.00 |
| No. 1 wrought, eastern Pa. | 11.00 | 11.00 | 13.25 | 15.75 |
| No. 1 wrought, Chicago | 8.50 | 9.00 | 9.50 | 13.30 |
| Rails for rolling, Chicago | 11.75 | 12.00 | 13.00 | 15.00 |

# Sheets

## Demand and Operations Show Further Downward Tendency—Weakness Persists in Prices

SHEET PRICES, PAGE 67

**Youngstown, O.**—Some revival in the volume of specifications for steel sheets has led to a few more independent sheet units being active. As to next week's prospects for mill operations, the managers are not so sanguine. Sufficient business in automotive sheets is in hand to insure several weeks of operations at today's rates. Common sheets are being bought in comparatively small lots as needed. Prices have not been under pressure, but the prime factor in the minds of buyers appears to be delivery dates, the earlier the better. Black sheets are 2.25c to 2.35c, Pittsburgh; blue annealed, 1.90c and 2.05c; galvanized, 2.80c to 2.90c; and autobody, 3.10c to 3.20c.

**New York**—Sheet business is sluggish, with prices easy. Galvanized sheets at 2.85c to 2.90c are subject to concessions of $1 a ton. Black sheets are weak at 2.25c. Blue annealed are 1.85c to 1.90c, Pittsburgh, for No. 9-10 gages, and 2.00c to 2.05c for No. 13. Inquiry from the Nicaragua earthquake zone to date has developed two carloads of No. 28 gage galvanized sheets for a local railroad.

**Philadelphia**—Further recession is noted in sheet business. Prices are easy at 2.80c to 2.85c, Pittsburgh, for galvanized, and 2.25c for black. Blue annealed are holding at 1.85c and 2.00c.

**Pittsburgh**—Slight gains in sheet demand in some directions do not offset lighter requirements in others and aggregate business is off moderately from the rate a month ago. Operations also are tending downward, the current rate being midway between 35 and 40 per cent, against 40 recently. Farm implement builders are showing more activity in buying than at any time so far this year. Some automotive interests are maintaining their purchases, although general demand from them is tending downward. Prices continue to lack strength. Producers are obtaining 2.25c and 2.35c on the bulk of black sheet orders, but on material where a number of extras are involved 2.15c occasionally prevails. Galvanized sheets continue 2.80c to 2.90c; blue annealed are 2.00c to 2.05c for No. 13 gage, and 1.85c to 1.90c for Nos. 9 and 10 gage. Autobody sheets are 3.10c to 3.20c. Long ternes are easier, with 3.15c the general market for unassorted material.

**Cleveland**—Shipments thus far in April have held up surprisingly well to the March level, despite a lull in the market. Most customers do not carry normal stocks. Black sheets are held at 2.25c, base, Pittsburgh, by the majority of sellers although two interests refuse to meet anything below 2.35c. In the Detroit district concessions of $2 a ton continue, and black sheets are on a 2.15c, Pittsburgh basis, in that district, or 2.41½c, delivered Detroit. The Fisher Body Co. is reported to have 100,000 units lined up for May, a 25 per cent gain over April. Demand for blue annealed is light, and galvanized stock, still nominally unchanged at 2.90c, Pittsburgh, suffers in price from jobber competition. Inquiry locally for autobody develops the 3.10c, Pittsburgh, figure, and 3.50c, Pittsburgh, is the price for furniture stock.

**Cincinnati**—Few inquiries for sheets are before district mills. Current sales are holding production at about 50 per cent.

**Chicago**—Sheet mills in this district are missing several turns, and the operating rate is barely 50 per cent, as compared with 50 to 55 per cent a week ago. Further weakness in galvanized sheets results in a 2.90c mill quotations, for No. 24 gage, with Chicago delivered prices 2.95c to 3.05c. Blue annealed quotations are unchanged. Demand for blue annealed is fair from a broad diversification of manufacture.

# Current Finished Steel Prices

**Prices in cents per pound unless otherwise stated**

## Steel Sheets

**SHEET MILL BLACK, NO. 24**

| | |
|---|---|
| Pittsburgh, base | 2.25c to 2.35c |
| Philadelphia, delivered | 2.54c |
| Gary, Indiana Harbor | 2.35c to 2.45c |
| Chicago, delivered | 2.40c to 2.50c |
| Birmingham, base | 2.40c to 2.50c |
| St. Louis, del. | 2.70½c |

**TIN MILL BLACK, NO. 28**

| | |
|---|---|
| Pittsburgh, base | 2.55c to 2.65c |
| Gary, base | 2.65c to 2.75c |

**GALVANIZED NO. 24**

| | |
|---|---|
| Pittsburgh, base | 2.80c to 2.90c |
| Philadelphia, delivered | 3.09c to 3.19c |
| Chicago, delivered | 2.95c to 3.05c |
| Gary, Indiana Harbor | 2.90c to 3.00c |
| Birmingham, base | 3.00c to 3.05c |
| St. Louis, del. | 3.25½c |

**BLUE ANNEALED SHEETS NO. 13**

| | |
|---|---|
| Pittsburgh, base | 2.00c to 2.05c |
| Chicago, district mills | 2.15c |
| Chicago, delivered | 2.20c |
| St. Louis, delivered | 2.40½c |
| Philadelphia, delivered | 2.29c |
| Birmingham | 2.20c |

**BLUE ANNEALED SHEETS NO. 9-10**

| | |
|---|---|
| Pittsburgh, base | 1.85c to 1.90c |
| Chicago, district mills | 2.00c |
| Chicago, delivered | 2.05c |
| Philadelphia, delivered | 2.14c |
| St. Louis, delivered | 2.25½c |
| Birmingham | 2.05c to 2.10c |

**AUTOMOBILE NO. 20**

| | |
|---|---|
| Pittsburgh, base | 3.10c to 3.20c |

**FURNITURE NO. 24**

| | |
|---|---|
| Pittsburgh, patent leveled | 3.50c |

## Tin and Terne Plate

**Prices per 100 pound box Pittsburgh**

| | |
|---|---|
| Tin plate, coke base | $5.00 |

Gary, Ind., base 10 cents higher.

(Per pound)

| | |
|---|---|
| Long ternes, 24, unassorted | 3.15c |

## Wire Products

**(To Jobbers-Merchant Trade)**

F.o.b. Pittsburgh, Cleveland base

(Per 100 pound keg)

(Second-quarter asking prices $2 per ton above these levels, except fencing.)

| | |
|---|---|
| Standard wire nails | $1.90 and 2.00 |
| Cement coated nails | 1.90 and 2.00 |
| Galvanized nails | 3.90 and 4.00 |

(Per pound)

| | |
|---|---|
| Polished staples | 2.35c and 2.45c |
| Galvanized staples | 2.60c and 2.70c |
| Barbed wire, gal. | 2.55c and 2.65c |
| Annealed fence wire | 2.35c and 2.45c |
| Galvanized wire | 2.80c and 2.90c |

Woven wire fencing, retailers, Pittsburgh-Cleveland, net ton $65.

**(To Manufacturing Trade)**

| | |
|---|---|
| Plain wire, 6-9 gage | 2.20c to 2.30c |
| Spring wire | 3.20c to 3.30c |
| Wire, delivered Detroit | 2.50c |
| Nails, delivered Detroit | $2.35 |

Joliet, DeKalb, Waukegan, Ill., Anderson, Ind., Chicago, $1 over Pitts.-Cleve.; Duluth and Worcester, Mass., $2 higher; Fairfield, Ala., $3 higher.

## Rivets

| | |
|---|---|
| Struc. c.l., Pitts.-Cleve. | 2.75c |
| Struc., c.l., Chicago | 2.85c |

**7/16-in., smaller, Pitts. 70, 10 and 5 off

Chi., Cleve. 70 to 70, 10 and 5 off

**Some makers quoting 70 off with freight allowed on 300 pounds or more.

## Steel Plates

| | |
|---|---|
| Base, Pittsburgh | 1.65c to 1.70c |
| Philadelphia, del. | 1.85½c to 1.90½c |
| New York, delivered | 1.93c to 1.98c |
| Boston, delivered | 2.05c to 2.10c |
| Chicago, base | 1.70c to 1.80c |
| Cleveland, delivered | 1.83½c to 1.88½c |
| Lackawanna, N. Y., base | 1.75c to 1.80c |
| Birmingham, base | 1.80c to 1.85c |
| Coatesville, Pa., base | 1.75c to 1.80c |
| Pacific Coast, c.i.f. | 2.00c to 2.05c |
| St Louis, del | 1.95½c |

## Structural Shapes

| | |
|---|---|
| Base, Pittsburgh | 1.65c to 1.70c |
| Philadelphia, del. | 1.76c to 1.81c |
| New York, del. | 1.90½c to 1.95½c |
| Boston, del. | 2.03½c to 2.08½c |
| Chicago, base | 1.70c to 1.80c |
| Cleveland, delivered | 1.83½c to 1.88½c |
| Lackawanna, N. Y., base | 1.75c to 1.80c |
| Birmingham base | 1.80c to 1.85c |
| Pacific Coast, c.i.f. | 2.05c to 2.15c |

## Bars

**SOFT STEEL**

| | |
|---|---|
| Base, Pittsburgh | 1.65c to 1.70c |
| Chicago, base | 1.70c to 1.80c |
| Birmingham base | 1.80c to 1.85c |
| Lackawanna, N. Y., base | 1.70c to 1.75c |
| Pacific Coast, c.i.f. | 2.15c |
| Cleveland, base | 1.65c to 1.70c |
| Philadelphia, del. | 1.94c to 1.99c |
| New York, del. | 1.98c to 2.03½c |
| Boston, del. | 2.05c to 2.10c |
| Pittsburgh, cold finish | 1.80c to 1.85c |
| Pittsburgh, forg. qual. | 1.90c to 1.95c |

**RAIL STEEL**

| | |
|---|---|
| Chicago Heights | 1.60c to 1.65c |
| Eastern mills | 1.55c |

**IRON**

| | |
|---|---|
| Chicago, base | 1.70c to 1.80c |
| New York, delivered | 1.93c to 2.03c |
| Philadelphia, delivered | 1.89c |
| Pittsburgh, refined | 2.75c to 4.25c |

**REINFORCING**

| | |
|---|---|
| Pitts., billet cut lengths | 1.90c to 2.00c |
| Stock lengths, mill | 1.65c to 1.75c |
| Chi., billet | 1.90c to 2.00c |
| Chi., rail steel | 1.60c to 1.70c |
| Chi., rail steel, less carload | 1.90c |
| Philadelphia, cut lengths | 2.19c |
| Cleveland, cut lengths | 1.95c to 2.05c |

## Cold Finished Steel Bars and Shafting

| | |
|---|---|
| Base, Pittsburgh, Chicago, Buffalo and Cleveland | 2.10c |
| Shafting, turned and ground, mill | 2.45c to 2.90c |

## Corrosion, Heat Resist. Alloys

**Base, Pittsburgh**

18 per cent chrome, 8 per cent nickel

Sheets, 35c; plates, 31c; bars, 28c.

| | A | B | C | D |
|---|---|---|---|---|
| Bars | 19c | 20.5c | 23c | 28c |
| Plates | 21c | 22.5c | 25c | 30c |
| Sheets | 26c | 27.5c | 30c | 35c |
| Hot strip | 19c | 20.5c | 23c | 28c |
| Cold strip | 28c | 29.5c | 32c | 37c |

Carbon 0.12 and under; no nickel. A has chrome 15% and under, B over 15/18% inc., C over 18/23% inc., D over 23/30%.

## Wrought Washers

| | |
|---|---|
| Carloads, Pitts. dist. | $6.50 to $6.75 off |
| Carloads, Chicago dist. | 6.70 to 6.80 off |

## Alloy Steel

**Hot Rolled—F.o.b. Mills**

Alloy Quality Bar Base is 2.65c

| S.A.E. | Alloy Diff. | S.A.E. | Alloy Diff. |
|---|---|---|---|
| 2000 | 0.25 | 1.25-1.75 Nl. | 1.05 |
| 2100 | 0.55 | 5100 .80 - 1.10 Cr. | 0.45 |
| 2300 | 1.50 | 51.00 Cr. spring | 0.20 |
| 2500 | 2.25 | 6100 bars | 1.20 |
| 3100 | 0.55 | 6100 Spring | 0.95 |
| 3200 | 1.35 | Cr., Nl., Van. | 1.50 |
| 3300 | 3.80 | Carbon Van. | 0.95 |
| 3400 | 3.20 | 9250 (flats) | 0.25 |
| 4100 .15 to .25 Mo. | 0.50 | 9250 (rds.,sq.) | 0.50 |
| 4600 .20 to .30 Mo. | | | |

## Strip, Hoops Bands

| | |
|---|---|
| Hot strip, to 6-in., Pitts. | 1.65c |
| Hot strip 6 1/16 to 24-in. Pitts. | 1.50c to 1.55c |
| Hot strip, bands 6 in. and under, Chicago | 1.70c to 1.75c |
| Do. 6 1/16 to 24 in. | 1.60c to 1.65c |
| Cooperage hoop, Pitts. | 1.70c to 1.80c |
| Do, Chicago | 2.00c to 2.10c |
| Cold rolled strip, Pitts., Cleve., 3 tons, over | 2.15c to 2.25c |
| Worcester, 3 tons, over | 2.40c to 2.50c |

## Rails, Track Material

| | |
|---|---|
| Standard bess. and open hearth rails, mill | $43.00 |
| Relay rails, Pitts., 60 to 90 lb. | $24.00 to 28.00 |
| Light rails, 25-45, mills | $34.00 |
| Light rails, Chicago | $36.00 |
| Angle bars, Chi. base | 2.75c |
| Spikes, railroad, mills | 2.70c |
| Spikes, railroad, 7/16-in. and smaller, Pitts. | 2.70c |
| Spikes boat, barge, Pitts. | 3.00c |
| Spikes, railroad, Chi. | 2.80c |
| Track bolts, Pitts., steam roads | 3.80c |
| Do. standard, jobbers | 73 off list |
| Track bolts, Chicago | 3.80c |
| Tie plate, mills | $39.00 |

## Bolts and Nuts

Pittsburgh, Cleveland, Birmingham and Chicago

Discounts to legitimate jobbing or large consuming trade for full-case lots apply to May 10, 1930, lists.

**CARRIAGE BOLTS**

| | |
|---|---|
| All sizes, cut thread | 73 off |

Rolled thread ⅜ x 6 and smaller take 10 per cent lower list.

| | |
|---|---|
| Eagle list | 73 off |

**MACHINE BOLTS**

| | |
|---|---|
| All sizes, cut thread, lag screws, plow bolts, Nos. 1-2-3-7 heads, tap bolts, blank bolts, stud bolts without nuts | 73 off |

Tire bolts, 60, 10 and 10 off.

Stove bolts, 80, 10, 10, 5 off in pkgs.; 80, 10, 5, 2½ off in bulk.

Rolled thread machine bolts, ⅜ x 6 and smaller take 10 per cent lower list.

**NUTS**

| | |
|---|---|
| Semifinished | 73 off |

**HEXAGON CAP SCREWS**

| | |
|---|---|
| Milled | 80-10-10-5 off |
| Upset 1 in. diam. and smaller | 85-10 off |

**SQUARE HEAD SET SCREWS**

| | |
|---|---|
| Milled | 80-5 off |
| Upset 1 in. and smaller | 80-10-5 off |
| Upset, larger than 1 in. | 80-5 off |

## Cut Nails, Chain, Piling

| | |
|---|---|
| Cut nails, c.l., Pittsburgh | 2.40c to 2.50c |
| do, less carloads, 5 kegs or over, 2.65c to 2.75c; and less than 5 kegs | 2.80c to 2.90c |
| Chain, BB, BBB, 9/16-1½ in. | 33 1/3 off |
| Sheet piling, Pitts. | 1.90c |

# Bars

**Buying Is Light and Insufficient to Test Prices—Specifications Are in Fair Volume**

BAR PRICES, PAGE 67

**Chicago**—Aside from occasional spot orders, buying of bars and other finished steel is negligible. Orders thus far have not been sufficient to test the second quarter 1.80c, Chicago, price. The scattered quantity orders from preferred industries fail to plumb the price structure. Bar specifications have picked up in the past week, enabling mills to maintain about 55 per cent. It is noted with encouragement that forgers and partsmakers find April automotive business meeting expectations. Tentative schedules for May are at a little higher rate.

**New York**—Most steel bar sellers are quoting 1.70c, Pittsburgh, on such light current business as is being offered. The majority of consumers are covered at 1.65c. Sellers report little change in volume over the past two weeks. Common iron bars are quiet at 1.60c to 1.70c, Pittsburgh.

**Philadelphia**—On such light business as is offering steel bars are steady at 1.70c, Pittsburgh. Most users are covered on contract at 1.65c. Iron bars are quoted at 1.60c to 1.70c, Pittsburgh, with the higher price largely nominal.

**Pittsburgh**—Shipments of steel bars are steady and for some producers compare favorably with activity a month ago. Specifications, however, continue light, partly as the result of business carried over from first quarter. The 1.65c price is holding fairly well on what specifications are being received although business is insufficent to provide a thorough test.

**Youngstown, O.**—While new business in steel bars is lagging, owing to most consumers having placed contracts with producing mills just before the opening of second quarter, shipments have swung into a fairly satisfactory routine for the mills. The improvement embraces the entire range of bars but is especially marked in the case of alloy steel. Bessemer bars for further drawing are especially active as they have been all spring. Common steel bars are holding firmly to 1.65c, Pittsburgh, on contracts, with some carload lots going to 1.70c.

**Cleveland**—Complicating a slightly diminishing run of inquiry has been the recent price policy of a local mill to name 1.65c, Cleveland base, more frequently. In consequence several contracts made at 1.70c, Cleveland, have been revised. Most sellers, however, are quoting 1.70c base and the market remains quotably unchanged at the $1 a ton spread.

## Cold-Finished Bar Sales Display Quietness

Cold Finished Prices, Page 67

**Cleveland**—Volume of shipments is steady but fails to display a trend upward that should be manifest with this season. Automotive requirements for local parts plants are not in a satisfactory volume. The market, due to outside mill price policy, is weak at 2.10c, Cleveland, on new business not under contract.

**Pittsburgh** — Specifications for cold-finished steel bars hold at moderately below the rate a month ago, while shipments are fairly steady. Quietness in new buying points to reduced operations in the automotive industry within the next few weeks. Purchases by other industries show a trend similar to that in the motor field. The market generally is 2.10c, Pittsburgh.

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American Alloy Tool Co., Philadelphia, has changed its name to the American Alloy Co.

# Plates

**Orders Are Slower—Barge Awards Taking Double 1930 Steel Tonnage—Prices Steady**

PLATE PRICES, PAGE 67

**Pittsburgh**—Awards of river craft are outstanding in the plate market, recent orders requiring 7400 tons of plates and shapes, and bringing the total for the past two weeks to 12,000 tons. The largest award was for 30 coal barges for the W. H. Warner Coal Co., Cleveland. Barge awards to date require nearly twice the tonnage that was consumed in 1930. Plate specifications are off slightly, while shipments are little changed from the rate of recent weeks. The market still lacks a test on large orders, but is holding fairly well on smaller lots at 1.65c, Pittsburgh.

**New York**—Delay continues to mark the placing of the substantial tonnage of plates for the New York Central Westside warehouse. While the P. T. Cox Contracting Co. is low, the general contract has not been awarded, so far as can be learned. Demand generally is light, with sellers quoting 1.75c to 1.80c, Coatesville, Pa., on the general run of business.

**Philadelphia**—The plate market is featureless. Prices are fairly steady at 1.75c to 1.80c, Coatesville, Pa. A small amount of plates are reqiured for 20 locomotives booked recently by the Baldwin Locomotive Works. The award of submarine V-9 requiring 300 tons of plates has been postponed indefinitely.

**Cleveland**—Orders for steel plates from day to day fail to encourage sellers, and April volume to date just about holds to the March rate. A local road machinery concern has been a bright spot in the market with heavier releases this spring than in some years. The 1.70c, Pittsburgh, price is sustained in the spot market. Usual outlets for plates are failing to specify in normal proportions, with ship repair, tank, boiler and bridge work light.

Standard Oil Co. of New Jersey is planning large expansion of production facilities in the oil fields near Dundee, N. Y. The Belmont (N. Y.) Quadrangle Co. and several other interests in that vicinity are planning new pipe lines to be laid this spring and summer. Marion Steam Shovel Co., Marion O., has received an order for all the steam shovels to be used in the Hoover dam project from Six Companies Inc., San Francisco, general contractor.

**Chicago** — Skelp shipments to Milwaukee for pipe line fabrication are the most important outlet in the plate market. Oil tank work again is quiet except for 3000 to 5000 tons in inquiries from East Texas and the coast. Western pipe line fabrication in the last 60 days has been ahead of a year ago, but plates for high pressure vessels used in oil refining and other process industries have dropped off. Plate prices are nominal at 1.70c to 1.80c, Chicago, as miscellaneous buying is light.

## Contracts Placed

4700 tons, plates and shapes, 30 coal barges for W. H. Warner Coal Co., Cleveland, placed by River Transportation Co., Cincinnati, with

Dravo Contracting Co., Pittsburgh.

2700 tons, plates and shapes, two dredges for United States engineers to Dravo Contracting Co., Pittsburgh.

Unstated tonnage, ten 100,000-gallon tanks, for Adamson Mfg. Co., Detroit, to Chicago Bridge & Iron Co., Chicago.

## Contracts Pending

30,000 tons, 60-inch steel pipe, Hetch Hetchy project, San Francisco, Calif. Bids to be called for at once.

## Semifinished Sales Light; Shading Is Reported

**Semifinished Prices, Page 78**

**Pittsburgh**—Shipments of semifinished steel reflect the reduced rate of operations of finishing mills and are off moderately from the March rate. New business continues as light as formerly and prices are receiving no test on large tonnages. Producers generally quote $30, Pittsburgh, for rerolling billets, slabs and sheet bars, $36 for forging billets and $37 for wire rods.

**Philadelphia**—With semifinished buying practically at a standstill, billets are nominal at $30, Pittsburgh, for rerollers, and $35 for forging quality.

**Youngstown, O.**—Intermittent operation of independent sheet mills in this district has developed an anomalous situation in the sheet bar market. Special contracts made some months ago now are being uncovered in the present highly competitive state of the market. While $30, Pittsburgh, Youngstown and Cleveland, is the going price on sheet bars, billets and slabs, it is understood that in certain instances in northern and eastern Ohio sheet bar contracts have been written at slight concessions.

**Cleveland**—Sheetmakers are pressing for a reduction in sheet bar prices, but so far orders have been billed out at $30, base. Cleveland and Youngstown, O., for sheet bars, billets and slabs. The leading merchant producer here continues to operate seven of its 14 open hearths.

**Chicago**—Pressure is developing against the $31 base price for billets and blooms. Little material has been closed for second quarter. Reports of $1 a ton concessions are noted. Quotations for wire rods are nominal at $38, Chicago.

James Mfg. Co., Fort Atkinson, Wis., steel barn and dairy equipment, has increased its capital stock from $800,000 to $1,250,000.

# Railroads

**Fastenings' Release Sustained —Colorado Fuel Gets 9000-Ton Rail Order—Few Cars Out**

**TRACK MATERIAL PRICES, PAGE 67**

**Chicago**—Heavy track fastenings releases continue. Rail releases also are active, keeping rail mill capacity about 50 per cent engaged. Track fastening sales totaled 1500 tons. A few miscellaneous rail sales, totaling less than 1000 tons, are noted in this district. Great Northern has formally awarded 9000 tons of rails to Colorado Fuel & Iron Co. for its Oregon extension line, connecting with Western Pacific. The Colorado mill had recently closed its rail department.

**Pittsburgh**—Specifications from railroads for track material and other steel products are fairly well maintained while new business and inquiry are light. The Pennsylvania railroad has taken no action on its recent inquiry for concrete bars.

**Cleveland**—New inquiry for fastenings is nil but carriers press the mills for delivery of material on the books. Pere Marquette is having an unstated tonnage of tie plates rolled for it this week by a leading independent mill. Railroads with headquarters in this district are in several cases demanding releases at present for fastenings specified originally for May.

## Car Orders Placed

Amtorg Trading Corp., 60 30-yard air dump cars, to Magor Car Corp., Passaic, N. J.

Central Supply Co., Philadelphia, 250 mine cars, with unstated builder.

Delaware & Hudson, 100 box cars and repairs to 350 freight cars, contract to own shops.

General Chemical Co., 15 steel rubber-lined tanks, to be installed on existing underframes and trucks, to American Car & Foundry Co., New York.

Kansas City Southern, four baggage and mail cars, to Pullman Car & Mfg. Corp., Chicago.

## Locomotives Placed

Union Pacific, 20 18,000-gallon tenders, to Baldwin Locomotive Works, Eddystone, Pa.

## Rail Orders Placed

Great Northern railroad, 9000 tons for Oregon extension to Colorado Fuel & Iron Co., Pueblo, Colo.

## Locomotives Pending

Toledo, Peoria & Western, 4 locomotive tenders.

## Car Orders Pending

Chicago, Milwaukee, St. Paul & Pacific, four air dump cars.

Morton Sand & Gravel Co., Chicago, five to 10 50-ton gondola cars.

# Obituaries

(*Concluded from Page* 31)

company merged with American Brake Shoe & Foundry Co. in 1902 he became vice president. He was made president in 1919 and retired ten years later but was elected board chairman.

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Stanton Palmer, 58, president of Snap-On Tool Co., Kenosha, Wis., manufacturing wrenches, tools, etc., died April 13 at his Chicago home.

□ □ □

Carl L. Jefferson, 49, eastern sales manager for Seagrave Mfg. Co., Columbus, O., was killed in an automobile accident at Columbia, Pa., April 17. For 14 years past he had resided at Philadelphia.

□ □ □

Alvin W. Krahn, 58, president of Krahn Mfg. Co., Milwaukee, died April 15. He had been identified with the foundry and machine shop business since he served his apprenticeship with Nordberg Mfg. Co. He established the Krahn company in 1906.

## Urges Closer Study of Rivet Performance

Toronto, Ont.—Welding will not replace rivets in building construction, according to Lee H. Miller, chief engineer, American Institute of Steel Construction, who addressed a conference of building officials here April 23. Because it is newer, welding has been subjected to closer study, whereas rivets have been accepted without extensive research. This is the time, in the opinion of Mr. Miller, when the function and the performance of rivets under stress should be studied more intimately.

"Based upon my present experience and information," said Mr. Miller, "I consider it folly to claim we are now ready to abandon rivets, even though welds may be made to replace them, and it is as great a folly to wipe out welds from our industrial processes, because we lack the experience to inspect and analyze their properties."

# Structural Shapes

**Golden Gate Bridge Taking 110,000 Tons Become Active —Week Otherwise Develops Small Awards and Inquiry— Pennsylvania Plans Elevation Work at Chicago**

STRUCTURAL SHAPE PRICES, PAGE 67

**Chicago**—Fresh structural inquiry, while totaling 2000 to 2500 tons, is almost entirely in lots under 600 tons each. Plain material is quoted 1.70c to 1.80c, Chicago. Pennsylvania track elevation plans embrace 23 full street-width subways, and new railroad bridges at five street crossings and another over switch tracks. South Park board, Chicago, is inquiring for about 2000 tons of miscellaneous plate, structural and piling material in bulkheads for extension of an island in the lake about one-half mile. Fabricators here are preparing to submit bids for two bridges in Louisiana which will total 1000 tons.

**Boston**—A better assortment of small projects is showing up, but large orders still are lacking. New England Structural Co. took 800 tons for a power station, while 300 tons are pending for a telephone building at Providence, R. I.

**New York**—Fabricators report an exceedingly dull week with awards negligible and inquiry scattered. Erected prices are unsettled. Work is expected to start shortly on the new subway on Sixtieth avenue requiring 25,000 tons of shapes. Fresh inquiry this week totals 4175 tons among eight projects.

**Philadelphia**—Award of 8500 tons for the South Broad street subway features structural demand, this tonnage going to American Bridge Co., through Jaffola & Mark. General demand is light with fabricated prices unsettled. Shapes are holding at 1.76c to 1.81c, Philadelphia, on carloads.

**Buffalo**—McClintic-Marshall Corp., Bethlehem, Pa., took 552 tons in a building for the Lake Erie Engineering Corp., at Tonawanda, N. Y. A brisk demand for small lots of fabricated material has been reported during the past ten days.

**Pittsburgh**—Activity in fabricated structural steel lacks a definite trend. Small lot inquiry shows some expansion but awards are light. Specifications for plain material are quiet and the 1.65c market still lacks a thorough test.

**Cleveland**—No award of size is reported except a 100-ton school at Lorain, O., which went to a local fabricator. The B. & O. freight warehouse steel award is witheld, 155 tons, but general contract has been awarded. Port Toledo Building Corp. builds a 400-ton garage at Toledo, O. In the Detroit district Whitehead & Kales were awarded 1100 tons for a building for the University of Michigan and 1750 tons for the Springwell power station.

## Contracts Placed

8500 tons, South Broad street subway, Philadelphia, to American Bridge Co., Pittsburgh, through Jafolla & Mark, general contractor.

4100 tons, Oklahoma-Biltmore hotel, Oklahoma City, Okla., and miscellaneous projects, to Mississippi Valley Structural Steel Co., St. Louis.

1750 tons, power plant, for Detroit, to Whitehead & Kales, Detroit.

1268 tons, Illinois state bridges, awarded as follows: Milwaukee Bridge Co., Milwaukee, 630 tons; International Steel & Iron Co., Evansville, Ind., 476 tons; Vincennes Bridge Co., Vincennes, Ind., 90 tons; Mississippi Valley Structural Steel Co., Chicago, 72 tons.

1100 tons, building, University of Michigan, Ann Arbor, Mich.; to Whitehead & Kales Co., Detroit, through James Baird Co., general contractor.

1075 tons, Black river state bridge, Louisiana, to Nashville Bridge Co., Nashville, Tenn.

1000 tons, addition to plant of General Steel Castings Corp., Eddystone, Pa., to American Bridge Co., Pittsburgh, Pa.

800 tons, power station, Boston, for Edison Illuminating Co., to New England Structural Co., Boston.

650 tons, state bridge work in Iowa to Clinton Bridge Works, Clinton, Ia.

616 tons, apartment, Forest Hills, Long Island, to Paterson Bridge Co., Paterson, N. J.

552 tons, building, Tonawanda, N. Y., for Lake Erie Engineering Corp., to McClintic-Marshall Corp., Bethlehem, Pa.

500 tons, Girls' Trade and Technical school, Milwaukee, to Wisconsin Bridge & Iron Co., Milwaukee.

426 tons, fourth section, construction bridge, Safe Harbor, Pa., for Safe Harbor Water Power Corp., to McClintic-Marshall Corp., Bethlehem, Pa., through Arundel Corp., Baltimore, general contractor.

400 tons, highway bridges in Michigan to American Bridge Co., Pittsburgh, and Elkhart Bridge & Iron Co., Elkhart, Ind.

350 tons, Reading railroad bridge, St. Nicholas, Pa., to McClintic-Marshall Corp., Bethlehem, Pa.

325 tons, salt warehouse, Tulsa, Okla., to Patterson Steel Co., Tulsa, Okla.

322 tons, bridge over Suncock river, N. H., to McClintic-Marshall Corp., Bethlehem, Pa.

300 tons, highway bridge, Broome county, N. Y., to American Bridge Co., Pittsburgh.

269 tons, medical building for St. Joseph's hospital, Elmira, N. Y., to American Bridge Co., Pittsburgh.

250 tons, bridge over Eauclaire river, Wausau, Wis., to Wausau Iron Works, Wausau.

230 tons, North State street viaduct, Chicago, to Paschen Bros., Chicago.

230 tons, bridge Snohomish, county, Wash., to Pacific Car & Foundry Co., Seattle, through Puget Sound Bridge & Dredging Co., general contractor.

200 tons, Nechako bridge, British Columbia, to unnamed interest through Stuart Cameron & Co. Ltd., Vancouver, B. C., general contractors.

200 tons, highway bridge, Connecticut, to American Bridge Co., Pittsburgh.

200 tons, Missouri Pacific railroad bridge, Webster Grove, Mo., to Mississippi Valley Structural Steel Co., St. Louis.

200 tons, highway bridge, Plummer, Idaho, to Minneapolis-Moline Power Implement Co., Minneapolis.

200 tons, airport hangar, Denver, Colo., to Burkhardt & Sons Steel & Iron Works, Denver.

178 tons, Odd Fellow's hall, Bradford, Pa., to Griffith-Custer Steel Co., Johnstown, Pa.

150 tons, Northwest Public Service Co. station, North Platte, Nebr., to Paxton & Vierling Iron Works, Omaha, Nebr.

110 tons, highway bridges, South Dakota, to Joseph T. Ryerson & Son, Chicago.

105 tons, hangar for King county, Wash., to Hoflus Steel & Equipment Co., Seattle, through Austin Co., general contractors.

100 tons, bridge, Eden, N. Y., to Buffalo Structural Steel Co., Buffalo, N. Y.

100 tons, school building, Lorain, O., to Republic Structural Iron Works, Cleveland.

## Awards Compared

| | Tons |
|---|---|
| Awards this week | 21,100 |
| Awards last week | 20,395 |
| Awards two weeks ago | 45,220 |
| Awards this week in 1930 | 12,825 |
| Av. weekly awards, 1930 | 35,242 |
| Av. weekly awards, 1931 | 43,035 |
| Av. weekly awards, March | 64,860 |
| Total awards to date, 1930 | 530,495 |
| Total awards to date, 1931 | 731,597 |

## Contracts Pending

110,000 tons, Golden Gate bridge, San Francisco; bids to be called by April 28.

2500 tons, Ford Motor Co. assembly plant, Mexico City, Mexico.

2000 tons, bridge, Allegheny county, Pa.; Fort Pitt Bridge Works, Pittsburgh, low.

1000 tons, New York state highway bridges.

900 tons, gymnasium, Hunter college, New York.

760 tons, Wisconsin state emergency relief bridge construction; bids close April 21.

650 tons, hospital addition, Bellevue avenue, Los Angeles; bids being received.

600 tons, highway bridge over Sag canal on Indiana route 49; bids soon.

507 tons, bridge over Ouachita river, Louisiana highway commission, Baton Rouge, La.; bids April 28.

500 tons, viaduct grillage, New York Central railroad yards, Thirtieth street, New York.

500 tons, children's hospital, Irvington-on-Hudson; plans revised.

500 tons, state armory, Kingston, N. Y., Hogan & Kanizera, Albany, N. Y., general contractors.

500 tons, viaduct, Grand Island, Nebr.

457 tons, bridge over Mermentau river, Louisiana highway commission, Baton Rouge, La.; bids April 28.

450 tons, Coliseum building, Tulsa State Fair association, Tulsa, Okla.

450 tons, Twentieth street bridge, for Pittsburgh; bids close May 5.

400 tons, compression building for Peoples Gas Light & Coke Co., East Chicago, Ind.

400 tons, high school building, Quincy, Ill.

400 tons, garage for Port Toledo Building Corp., Toledo, O.

400 tons, Greek church, West Seventy-fourth street, New York.

385 tons, bridge over Cimarron river, Oklahoma highway commission, Oklahoma City, Okla.; bids April 28.

300 tons, New England telephone building, Providence, R. I.

300 tons, overhead crossing, Ft. Crook, Nebr.

300 tons, high school building, Manitowoc, Wis.

250 tons, Y.M.C.A. trade school, 15 East Sixty-third street, New York; Newburg, Gobin & McKenna, 103 Park avenue, New York, awarded general contract.

125 tons, Seaside hospital, Staten Island, N. Y.

113 tons, bridge over north fork, Trinity river, Trinity county, Calif.; bids May 6.

100 tons, veterans hospital, Walko, Tex.

Unstated tonnage, bridge for Michigan Central railroad, St. Thomas, Ont.; bids to be taken shortly.

## Buyers Told Direct Scrap Dealing Hurts Business

Purchasing agents of producers and consumers of scrap were urged to re-examine their scrap marketing policies, by Benjamin Schwartz, director general of the Institute of Scrap Iron and Steel, in an address before the New England Purchasing Agents association in Boston.

Mr. Schwartz advised that the best interests of producers and consumers are protected by selling and purchasing their scrap through the scrap dealer, operating in an open competitive market, and that the purchasing agent should select a reliable scrap dealer who is conducting his business on a merchandising basis and is building his business on service.

He asked the co-operation of the industries of New England, in assisting the institute in its program of eliminating unfair trade practices within the industry.

# Concrete Bars

**Building Work Being Postponed — 1100-Ton Grain Storage Building Up at Chicago—Prices Display Easiness—Awards for Week Are 5600 Tons**

REINFORCING BAR PRICES, PAGE 67

**Chicago**—Road surfacing in North Central states is giving life to the reinforcing bar market. Over 300 miles is being distributed to bar fabricators. On the other hand, much building work is being postponed for later in the year. Rail steel bars for road work are reported firm at 1.65c to 1.75c, while billet bar fabricators now are quoting a minimum of 1.90c for carloads and over. Inquiries, which include many small jobs, list also a 1100-ton grain storage project for Chicago Elevator Properties Inc., general contract for which has been let.

**Boston**—Concrete bar makers are finding a somewhat better demand for small lots. About 150 tons was sold for this class of work, while Concrete Steel Co. closed for 100 tons for a state bridge at Northborough, Mass. Trucson Steel Co. has taken 700 tons of bars for road work in Vermont. Listed prices are ruling.

**New York**—Concrete bar awards are slightly more numerous but confined to small lots. Sellers see few signs of early improvement. Aside from 2000 tons still pending for the New York Central warehouse development, reinforcing bar demand is light and prices are weak.

**Philadelphia**—Pennsylvania railroad is understood to have postponed indefinitely action on 8400 tons of reinforcing bars. The usual price in the market is 1.60c to 1.65c, Pittsburgh. Fresh inquiry is negligible. Two contracts took 450 tons in the week.

**Buffalo**—Bids will be received shortly for two additional buildings at the new East Buffalo food terminal development of the Erie and Nickel Plate railroads, for which a total of 350 tons of reinforcing will be required.

**Pittsburgh**—Reinforcing bar demand is lagging, seasonal expansion lacking though business is little changed since a month ago. Awards include 500 tons for a hospital at Springfield, O. Other awards and inquiry involve only small lots.

**Cleveland**—Award is featured this week by the 300-ton job for Huron road hospital which went to Trûscon Steel Co., and the 150 tons for Cedar Point going to an unstated concern. Rice Jones Co. has the general contract on 70 tons of bars in the Nickel Plate bridge deck, Woodland avenue. Emerson Co. is reported trying to change the 300-ton structural Hardie Candy Co. plant to concrete. Two hundred tons are pending for the Cleveland Provision Co. plant.

**Birmingham, Ala.**—Small shapes for road work are in good demand and shipments of reinforced bars are fairly active. Several road awards will be made late this month.

## Awards Compared

| | Tons |
|---|---|
| Awards this week | 5,600 |
| Awards last week | 1,948 |
| Awards two weeks ago | 6,356 |
| Awards this week in 1930 | 7,526 |
| Av. weekly awards, 1930 | 6,990 |
| Av. weekly awards, 1931 | 7,171 |
| Av. weekly awards, March | 12,367 |
| Total awards to date, 1930 | 115,198 |
| Total awards to date, 1931 | 121,902 |

## Contracts Placed

700 tons, road work, Vermont, to Truscon Steel Co., Youngstown, O.

500 tons, Illinois road work, to Calumet Steel Co., Chicago.

500 tons, Twin City lock, Mississippi river, Minneapolis, to Paper, Calmenson & Co., St. Paul.

500 tons, Springfield hospital, Springfield, O. to Truscon Steel Co., Youngstown, O.

425 tons, Black river state bridge, Louisiana, to Jones & Laughlin Steel Corp., Pittsburgh.

400 tons, community hotel, Yakima, Wash., to Pacific Coast Steel Corp., Seattle.

325 tons, nurses' home, city hospital, St. Louis, to Missouri Rolling Mill Co., St. Louis.

300 tons, Illinois road work, to Joseph T. Ryerson & Son, Chicago.

300 tons, Illinois road work, to Concrete Steel Co., Pittsburgh.

300 tons, Huron road hospital, East Cleveland, O., to Truscon Steel Co., Youngstown, O., through John Gill & Sons, general contractor.

300 tons, subway work, Philadelphia, to Truscon Steel Co., Youngstown, O., through Keystone Construction Co.

200 tons, hospital, Aurora, Ill., to Hunter Construction Co., Pittsburgh.

150 tons, Commonwealth Edison Co. substation, Chicago, to Joseph T. Ryerson & Son, Chicago.

(*Concluded on Page 75*)

# Strip

**Buying Declines and Production Is Lower—Prices Steady with Occasional Concessions Met**

STRIP PRICES, PAGE 67

**Pittsburgh**—Strip business continues to decline and operations at 40 to 45 per cent are lower than a week ago. Shipments are fairly well maintained but in view of the quiet character of new business are expected to moderate shortly. Prices continue easy, with cold-rolled strip shaded $2 a ton on recent business. The market now is 2.15c to 2.25c. Hot strip usually is 1.55c and 1.65c but occasionally concessions are noted on the price of wide material. Cold-rolled strip is dull with operations around 20 to 25 per cent. Shipments to the automotive industry are fairly steady but specifications are substantially lower than several weeks ago.

**New York**—With little improvement over the dull demand of recent weeks, strip prices are unchanged. Hot strip is holding 1.55c, Pittsburgh, for wide, and 1.65c, for narrow. Cold-rolled strip is 2.25c, Pittsburgh.

**Philadelphia**—Dullness in demand for steel strip is more pronounced, if any change can be detected. Hot-rolled strip prices are unchanged at 1.55c, Pittsburgh, for wide and 1.65c for narrow. Cold-rolled strip is 2.25c, Pittsburgh.

**Youngstown, O.,** April 21—Mills in this district have been in receipt of improved volume of both hot and cold-rolled strip specifications especially within the past several days. This gain in specifications has come largely from the automotive builders, more especially from the medium priced car builders. Other consumers also are specifying more liberally. The quotations are unchanged.

**Cleveland** — Sales of hot-rolled strip have displayed some expansion, and of import is price firmness at 1.55c and 1.65c, Pittsburgh. Several isolated cases of less-carload business take the higher prices of $1 a ton up, or 1.60 and 1.70c, respectively. Cold-rolled volume still is light, mill operations at 25 to 30 per cent of capacity being illustrative of consumer demands. The 2.25c, Cleveland, base holds on the latter, with 2.35c applying on small tonnage lots.

## Brings Norwegian Ore

The BONNEVILE, a Norwegian motor ship, recently brought 5400 tons of iron ore to Boston for the Mystic Iron Works, Everett, Mass.

## Warehouse Market Shows Growing Number of Orders

Warehouse Prices, Page 89

**New York**—Warehouse trading is maintained, with business in structurals contributing in no small measure. General volume is light and prices are unchanged.

**Philadelphia**—Warehouse business is declining. Some jobbers report a drop of 10 per cent under the corresponding period of March. Prices are unchanged.

**Pittsburgh**—Sales are slow and unimproved except for seasonal gains in some products. Roofing material is more active but still quiet for this period. Prices are unchanged.

**Cleveland**—Orders continue numerous but extremely small. Strip and sheets continue to move in an unimpressive volume. There have been no announced changes in price.

**Detroit**—Number of orders over the past week, while not showing any remarkable gains, proved to be the best this year. Prices are unchanged.

**Cincinnati**—Jobbers report volume for April will be little different than for March. Prices remain unchanged.

**Chicago**—Although sales volume in the last week made no perceptible gains, an upward trend in the number of orders is noted since early in the year. Demand for individual products fluctuates almost daily. Galvanized sheets are fairly active.

**St. Louis**—While still exhibiting a considerable degree of spottiness, demand for iron and steel goods from warehouses as a whole has developed slight improvement since the second week in April. Individual orders continue light, but more diversified needs are appearing.

## Operations Show Continued Easing in Ingot Output

**Youngstown, O.**—Steel ingot operations declined slightly this week to about 43 per cent of capacity. Operations of the larger plants are little changed with Republic mills at 50, Carnegie at 50 and Sheet & Tube at 30 to 35 per cent. Newton Steel Co. operations at its Ohio plant are 65, while Sharon Steel Hoop activity is near 55 per cent. Empire Steel Corp. mills again are idle.

**Philadelphia**—Eastern ingot operations are 45 to 47 per cent this week, off approximately one point. A leading mill is at 51 per cent, unchanged from last week.

**Pittsburgh**—Ingot production is slightly below 50 per cent, although blast furnace schedules are unchanged with 21 stacks active of the 54 steelworks furnaces in the district. Sheet schedules are lower at 37 and tin plate also is a few points lower at 80. Strip output has declined to 40 to 45 with pipe continuing 35.

**Buffalo** — Steelworks operations here are up five points this week, to 53-55 per cent capacity. Shipment by lake is largely responsible for the increased output.

**Cleveland** — Operations are unchanged from point of ingot production at approximately 55 to 59 per cent. Ninteen open hearths will be pouring part of the week, with the addition of a twentieth late in the week, of the potential 34 for the district.

**Chicago**—District ingot capacity is now approximately half engaged, compared with 55 per cent a week ago. Blast furnace output is unchanged, with 16 of the 36 steelworks stacks in blast. Finishing mills have made little change except the slight gains in bar mill production, which have been offset by sheet mill declines.

**Birmingham, Ala.**—Steelworks operations on the whole are unchanged. In shapes there is improvement but other lines are lagging. From standpoint of ingot production operations continue around 64-66 per cent.

## Delay Iron Tariff Rise

Washington — Something has slowed up the progress of the pig iron report of the tariff commission but neither the experts nor members of the commission will say what it is.

The report was submitted to the commission a number of weeks ago following a hearing on the request for an increase in tariff rates on the basis of the difference of cost of production at home and abroad.

Present duty is $1.12½ per ton; domestic producers seek an increase of 50 per cent, to $1.68¾.

## Concrete Bars

(*Concluded from Page 71*)

150 tons, bridge, Aurora, Ill., to Olney J. Dean Co., Chicago.

150 tons, culvert work, Cedar Point, O., to unstated interest, Cleveland district, through H. L. Scott, general contractor. Short rails and odd sizes to be used.

150 tons, state bridge, Northborough, Mass., to Concrete Steel Co., Pittsburgh.

150 tons, sewage plant, Burlington, N. J., to Taylor-Davis Inc., Philadelphia.

123 tons, paving, Santa Barbara county, Calif., to unstated company.

100 tons, office building, Holt street, Pomona, Calif., to unstated company.

100 tons, Link river bridge, Klamath Falls, Oreg.; to Linfstrom & Freigenson, Portland, Oreg.

## Contracts Pending

1000 tons, Wisconsin state emergency relief construction; bids close April 21.

200 tons, plant for Cleveland Provision Co., West Sixty-fifth street, Cleveland.

190 tons, Flickinger warehouse building, Buffalo; bids soon.

160 tons, Granger warehouse building, Buffalo; bids soon.

138 tons, highway work, Los Angeles county, Calif.; bids received.

100 tons, highway work, Placer county, Calif.; bids May 6.

Unstated tonnage, tuberculosis sanitarium, Warrensville, O., for City of Cleveland.

## Smith Corp. Finds 1931 Better than 1930

A. O. Smith Corp., Milwaukee, reports shipments of line pipe in the last two months exceeded the corresponding months of last year. Output of the automotive division, which makes automobile frames and axle housings, since the first of the year has averaged 75 per cent of the similar 1930 period. Production of high pressure steel vessels used by the oil refining, chemical and other process industries, is below last year, due to reduction in expansion activity in those industries.

The Smith corporation in February and March, the first two months of the last half of the company's fiscal year, which ends July 31, has continued the good showing in earnings made in the first six months ended Jan. 31, when the net profit was $2,886,621, or $5.64 a share, against $2,674,811, or $5.25 a share in the similar period of the previous year.

## Cut Eastern Scrap Rates

New York—General reduction in freight rates on iron and steel scrap moving from this district to certain points in New Jersey, Delaware and eastern Pennsylvania is scheduled for the near future. Pennsylvania railroad will act April 27, Lehigh Valley May 4 and Central Railroad of New Jersey May 15. This reduction is expected to be extended to other territories later, and, in the main, will be to the advantage of the shipper.

## Milling Machine Sales Doubled in March

March sales of the Kearney & Trecker Corp., Milwaukee, manufacturing milling machines, were largest since August, 1930, and were 100 per cent larger than in February, according to George L. Erwin, general sales manager. While the working force, now numbering 700, has not been increased, working hours have been extended. According to Mr. Erwin, a favorable indication is the fact that orders have not come in from a few regions but from 19 principal manufacturing centers in all parts of the country, and from Great Britain.

## Companies Loaning Money To Their Unemployed

Washington—Important industrial companies are making cash loans to their employes who are in need because of protracted layoffs, to be repaid from wages when business picks up, according to Col. Arthur Woods, chairman, President's emergency committee for employment. Some of the companies contemplate a higher level of employment in the near future and desire to keep their working forces intact. Procedure for making loans in five representative plans, including that of the General Electric Co. and International Harvester Co., is outlined in a report by Colonel Woods.

# Pipe

**25,000-Ton Seamless Order Awarded—Other Lines Pending —Western Cast Active**

PIPE PRICES, PAGE 89

**Pittsburgh**—Pending pipe line inquiries are slow to close. Sinclair interests have placed 25,000 tons of seamless pipe with a local mill but closing on various other projects is deferred. Considerable hope remains for awarding of a number of these lines within the next 30 days. Activity in standard pipe continues slow despite a slight gain since March. Demand for other tubular products holds at the recent slow pace with seamless oil country goods showing little life.

**Boston**—Some 2000 tons of pipe were sold in the New England district in the week. One utility company took 600 tons of gas pipe from Warren Foundry & Pipe, while two other utilities aggregated about 650 tons, split between different makers. Warren Foundry & Pipe took five of the half dozen municipal awards running from 100 to 250 tons, while United States Pipe & Foundry took the 100 tons from Methuen, Mass. Prices are still unsettled.

**New York**—Immediate shipment is being offered on most sizes of butt and lapweld pipe, reflecting continued dull demand. Several sizable tonnages of line pipe still are pending, including 5000 tons of 8⅝ and 10¾-inch steel pipe for Texas Co.

Currently cast iron pipe is essentially in a buyers market with prices unsettled. Department of water supply opened bids April 22 on 200 tons of 4 to 36-inch; April 21 on 80 tons of cast fittings and 500 tons of 16-inch steel pipe.

**Washington**—District of Columbia award of 230 tons of cast iron pipe fittings has been withheld as a representative of the low bidder threatened to carry the matter to the state department if his client's bid was rejected because the products would come from France. Herbert Kennedy Co. Inc., New York, is low.

**Youngstown, O.**—Aside from the closing of the Sinclair oil pipeline by the Jones & Laughlin Steel Corp., there are three live welded pipeline projects believed to be at the closing point. These include seamless and electrically welded projects ranging from 10,000 to 18,000 tons each. However, it is not certain as yet that any of these projects will be awarded owing to proposed financing.

**Chicago** — Wisconsin, Michigan, and Ohio municipalities are active in the cast pressure pipe market for small quantities. Canton, O., has awarded 1200 tons of 16-inch and smaller. Oakfield, Wis., has taken bids on 300 tons of 6 to 20-inch. Prices for 6 to 24-inch range at $42 to $44, delivered Chicago. Railroad

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orders are light. Public utility business is tapering.

**Birmingham, Ala.**—Recent lettings have been sufficient to build up backlog again and second quarter of year will be active for producers of cast iron pipe. Production remains 60 to 70 per cent of capacity and larger diameter-sized pipe holds prominence. Base price is unchanged at $35 to $36, on 6-inch sizes and over, despite reports of concession.

## Cast Pipe Placed

2725 tons, 16 and 24-inch, class B, Los Angeles, to Utilities Equipment Co., representing R. D. Wood & Co., Philadelphia.

1200 tons, 16-inch and smaller, for Canton, O., to United States Pipe & Foundry Co., Birmingham, Ala.

600 tons, gas pipe, for Boston utility interest, to Warren Foundry & Pipe Co., Phillipsburg, N. J.

250 tons, various sizes, arsenal, Watertown, Mass., to Warren Foundry & Pipe Co., Phillipsburg, N. J.

220 tons, various sizes, Meriden, Conn., to Warren Foundry & Pipe Co., Phillipsburg, N. J.

150 tons, 6, 10 and 12-inch, Brookline, Mass., to Warren Foundry & Pipe Co., Phillipsburg, N. J.

130 tons, 10-inch, for Wenatchee, Wash., to unstated interest, through E. B. Link, Wenatchee, general contractor.

100 tons, various sizes, for Methuen, Mass., to United States Pipe & Foundry Co., Burlington, N. J.

100 tons, various sizes, Cambridge, Mass., to Warren Foundry & Pipe Co., Phillipsburg, N. J.

## Steel Pipe Placed

25,000 tons, 12 inch outside diameter, seamless pipe for Sinclair-Texas Pipe Line Co. to Jones & Laughlin Steel Corp., Pittsburgh.

Unstated tonnage, 4-inch high pressure gas pipe line 71,280 feet long between Marquette and Negaunee, Mich., for Michigan Gas & Electric Co., to Republic Steel Corp., Youngstown, O.

## Cast Pipe Pending

2896 tons, 6 and 12-inch, class B, Los Angeles; bids received.

300 tons, 6 to 20-inch pipe for Oakfield, Wis., James B. Clow & Sons, Chicago, low bidders.

200 tons, 4 to 36-inch, for department of water supply, New York; bids open April 22; 80 tons cast fittings, bids open April 21.

100 tons, 6-inch, class C, improvement Addison street, San Diego, Calif.; bids May 4.

100 tons, for Littleton, Mass.; bids closed.

Two miles, 36 and 38-inch, for Portland, Me.; bids closed.

## Steel Pipe Pending

10,000 tons, 10-inch gas line in Montana, for unstated Ohio oil company.

3000 tons, 48-inch, for Portland, Me., alternate for concrete; bids opened April 21.

800 tons, 48-inch, for Newton, Mass., general contract awarded to C. & R. Construction Co.

500 tons, 16-inch, for department of water supply, New York; bids open April 22.

# Wire

**Higher Second Quarter Prices Fail Complete Application—Some Products Hold Up Well**

WIRE PRICES, PAGE 67

**Chicago**—April shipping schedules of manufacturers' wire are meeting expectations. Uncertainty exists as to automotive demand for May. Woven fencing orders in some sections of Mississippi valley territory and the northwest are close to a year ago. Prices probably will meet no test until early next month. Almost no forward buying is being done. Prices quoted are $2.05, Chicago or western mills, for wire nails, and 2.35c for plain wire. Southern markets are quiet.

**Worcester, Mass.**—Despite some hesitation and unsatisfactory price conditions, wire production in Worcester plants is holding to previous schedules. Shipments are being maintained comparable to first quarter deliveries.

**New York**—Nails are moving at $1.90, Pittsburgh, with higher asking prices nominal. Bright wire is 2.20c, Pittsburgh. Inquiry is dull.

**Pittsburgh**—Shipments and incoming wire business are declining. Specifications have not appeared to offset the light buying earlier in the month occasioned by the closing out of first quarter contracts and shipments against these are expected to be completed shortly. Higher prices announced for second quarter have failed to find complete application and old quotations prevail on a large portion of tonnage. Wire nails continue $1.90 to $2 to jobbers. Plain wire usually is 2.20c with 2.30c finding only limited application. Wire rod consumers have been able to buy at $35 in some cases, producers usually quoting $37.

**Cleveland**—Sales pressure in this district by too many sellers complicates any effort to raise prices of wire and wire products. Sellers quote 2.30c and $2 on wire and nails, respectively, but revert to a 2.20c and $1.90 base if several carloads of material are in sight. Also, jobbers and manufacturing interests continue to order out on their commitments on the books, so that in the latter instances it is yet too early to say not only if the price advances of March 7 will apply but whether any satisfaction is to be derived from the proposed advance. Shipments are steady, as are mill opereations.

---

Stout Mfg. Co., Menominie Falls, Wis., has been purchased by Herman Krause and the name has been changed to the Menominie Falls Mfg. Co.

## Bolt, Nut, Rivet Rate Shows Little Change

Bolts, Nuts, Rivets Prices, Page 67

**Pittsburgh** — Specifications for bolts, nuts and rivets hold slightly above the rate a month ago despite lack of improvement over recent weeks. Orders are spotty and usually for small lots. Prices are fairly steady at 73 off for bolts and nuts and 2.75c, Pittsburgh, for large rivets. Operations continue around 35 per cent.

**New York**—Buying of bolts and nuts continues to drag, with eastern producers still operating at 35 per cent. Prices are unchanged and untested at 73 off for domestic material. Importers are offering 73 and 20 off on a certain range of popular sizes.

**Chicago**—Specifications for nuts and bolts are falling below March. Production is off slightly to about 40 per cent. Producer and jobber quotations on nuts, bolts and rivets are holding, with no recent concessions reported. Large structural rivets are nominal at 2.85c, Chicago. All sources of demand except automotive have dropped off.

## Report 3 Fabricators To Merge with Bethlehem

New York—Acquisition of three prominent northern New Jersey fabricating plants by the Bethlehem Steel Corp. by May 1 is indicated here. These companies are Levering & Garrigues Co., Dunnellen, N. J., with an annual capacity of approximately 65,000 tons; Hay Foundry & Iron Works, Newark, N. J., 55,000 tons; and Hedden Iron Construction Co., Hillside, N. J., 35,000 tons.

Official confirmation is lacking, but it is assumed they will be merged into the McClintic-Marshall division of the Bethlehem corporation. Reports linking these companies with Bethlehem have been current many weeks. Harris Structural Co., Passaic, N. J., also has been mentioned, but this company now appears to be definitely out of the negotiations.

# Raw Material Prices

## Pig Iron

**Per Gross Ton**

**FOUNDRY, NO. 2**

| | |
|---|---|
| Chicago furnace | $17.50 |
| Pittsburgh, dist. fur. | 17.50 |
| Pittsburgh, delivered | 18.13 to 18.63 |
| Valley furnace | 17.00 |
| Cleveland fur., local del. | 17.00 |
| Philadelphia, delivered | 17.76 |
| Virginia, furnace | 17.75 |
| Granite City, Ill., fur. | 17.50 |
| Buffalo, fur., local del. | 17.50 |
| Buffalo, del. Boston | 21.41 to 21.91 |
| Buff., all-rail, Brooklyn | 19.91 to 20.91 |
| Buff., all-rail Newark | 18.28 to 18.78 |
| Ala., Bir. fur., local del. | 12.00 to 13.00 |
| Alabama, del. Chicago | 17.01 |
| Alabama, del. St. Louis | 15.42 |
| Alabama, del. Cincinnati | 14.69 to 15.19 |
| Ala., Phila., dock del. | 16.25 |
| Ala., Balt., dock del. | 16.00 |
| Alabama, New York dock | 16.50 |
| Ala., Boston dock del. | 16.75 |
| Tenn., Bir. base, local del | 13.00 |
| Tennessee, del. Cinn. | 14.69 to 15.19 |
| Montreal, delivered | 23.50 |
| Toronto, delivered | 22.10 |

**FOUNDRY, NO. 2X**

| | |
|---|---|
| Buffalo, fur., local del. | 18.00 |
| Buff., all-rail, Brooklyn | 20.91 to 21.41 |
| Buffalo, all-rail Newark | 18.78 to 19.28 |
| Buffalo, del. Boston | 21.91 to 22.41 |
| Virginia furnace | 18.25 |
| Eastern, del. Phila. | 18.26 |

**FOUNDRY, NO. 1X**

| | |
|---|---|
| Buffalo fur., local del. | 19.00 |
| Eastern, del. Phila. | 18.76 |

**MALLEABLE**

| | |
|---|---|
| Valley furnace | 17.00 |
| Cleveland fur., local del. | 17.00 |
| Pittsburgh dist. fur. | 17.50 |
| Pittsburgh, delivered | 18.13 to 18.63 |
| Chicago, furnace | 17.50 |
| Buffalo fur., local del. | 18.00 |
| Eastern Penna., delivered | 18.26 to 20.91 |
| Granite City, Ill., fur. | 17.50 |
| Montreal, delivered | 24.00 |
| Toronto, delivered | 22.60 |

**BASIC**

| | |
|---|---|
| Pittsburgh, district fur. | 17.50 |
| Pittsburgh, delivered | 18.13 to 18.63 |
| Eastern Penn., del. | 17.25 |
| Buffalo fur., local del. | 17.00 |
| Montreal, delivered | 20.50 |
| Valley, furnace | 17.00 |

**BESSEMER**

| | |
|---|---|
| Valley furnace | 17.00 |
| Pittsburgh, delivered | 18.13 to 18.63 |
| Pittsburgh, furnace | 17.50 |

**LOW PHOS.**

| | |
|---|---|
| Valley fur., standard | 27.00 |
| Philadelphia, standard | 24.76 to 27.79 |
| Copper-bear., E. Pa. fur. | 22.50 to 23.00 |

**GRAY FORGE**

| | |
|---|---|
| Valley furnace | 16.50 |
| Pittsburgh district fur. | 17.00 |
| Pittsburgh, delivered | 17.63 to 18.13 |

**CHARCOAL**

| | |
|---|---|
| Lake Superior, del. Chi. | 27.04 |

**SILVERY**

Jackson County, O., fur., in per cents 6—$21; 7—$21.50; 8—$22; 9—$22.50; 10—$23; 11—$24; 12—$25; 13—$27.

**BESSEMER FERROSILICON**

Jackson County, O., fur., in per cents 10—$25; 11—$26; 12—$27; 13—$29; 14—$31; 15—$26; 16—$35.

## Coke

**Prices Per Net Tons**

**Beehive Ovens**

| | |
|---|---|
| Connellsville furnace | $2.50 |
| Connellsville foundry | 3.25 to 4.75 |
| New River foundry | 6.00 |
| Wise county foundry | 4.25 to 5.00 |
| Wise county furnace | 3.50 to 4.25 |

**By-Product Foundry**

| | |
|---|---|
| Newark, N. J., del. | 9.00 to 9.40 |
| Chicago ovens | 8.00 |
| New England, del. | 11.00 |
| St. Louis, del. | 9.00 |
| Birmingham, ovens | 5.00 |
| Indianapolis, del. | 8.25 |
| Ashland, Ky., ovens, Connell., basis | 5.50 |
| Portsmouth, O., ovens, Connell., basis | 5.50 |
| Buffalo, ovens | 8.00 to 8.50 |
| Detroit, ovens | 8.50 |
| Philadelphia, del. | 9.00 |

## Iron Ore

**LAKE SUPERIOR ORE**

| | |
|---|---|
| **Gross ton, 51½%, Lower Lake Ports** | |
| Old range bessemer | $4.80 |
| Mesabi bessemer | 4.65 |
| Old range nonbessemer | 4.65 |
| Mesabi nonbessemer | 4.50 |
| High phosphorus | 4.40 |

**EASTERN LOCAL ORES**

**Cents per unit delivered at Eastern Pennsylvania and New Jersey furnaces**

| | |
|---|---|
| Foundry and basic, 56-63%, contract | 10.00 |
| Copper-free low phos. 58-65% | nom. |

**FOREIGN ORE**

**Cents per units, alongside docks Atlantic ports**

| | |
|---|---|
| Foreign manganiferous ore, 45-55% iron, 6-10% manganese | 10.00 |
| North African low phosphorus | 9.00 |
| Swedish basic, 65% | 9.00 |
| Swedish low phos. | 10.00 |
| Spanish, North African basic, 50 to 60% | 9.00 |
| Newfoundland fdy., 55% | 9.00 |
| Tungsten, spot and future short ton unit, duty paid | $11.00 to $11.50 |
| Chrome ore, 48% net ton c.i.f. | $21.50 to 22.00 |

## Manganese Ore

Prices, not including duty, are cents per unit; cargo lots.

| | |
|---|---|
| Caucasian, 52-55% (nom.) | 26 to 28 cents |
| South African, 52% | 26 to 28 cents |
| South African, 49-51% | 25 to 26 cents |
| South African, 44-47% | 24 cents |
| Indian, 48-50% | nom. |
| Brazilian, 46-48% (nom.) | 22 cents |

## Refractories

**FIRE CLAY BRICK**

**Per 1000 f.o.b. Works**

**First Quality**

| | |
|---|---|
| Pennsylvania, Ohio, Illinois, Kentucky, Missouri, Maryland | $40.00 |
| Georgia, Alabama | 40.00 |

**Second Quality**

| | |
|---|---|
| Pennsylvania, Ohio, Illinois, Kentucky, Missouri, Maryland | 35.00 |
| Georgia, Alabama | 30.00 to 35.00 |

**SILICA BRICK**

| | |
|---|---|
| Pennsylvania | 40.00 |
| Joliet, Ill., East Chicago, Ind. | 49.00 |
| Birmingham, Ala. | 50.00 |

**MAGNESITE BRICK**

**Per Net Ton**

| | |
|---|---|
| 9 x 4½ x 2½ | $65.00 |

**MAGNESITE**

| | |
|---|---|
| Dead burned grain, net ton, Chester, Pa., or Baltimore bases | 40.00 |
| Domes, Chewelah, Wash., base | 22.00 |

**CHROME BRICK**

| | |
|---|---|
| Net ton, Chester, Pa., and Baltimore base, 9 x 4½ x 2½ | 45.00 |

## Semifinished Steel

**PRICES PER GROSS TON**

**BILLETS AND BLOOMS**

**4 x 4-inch base**

| | |
|---|---|
| Pittsburgh, open-hearth | $30.00 |
| Pittsburgh, bessemer | 30.00 |
| Youngstown | 30.00 |
| Cleveland | 30.00 |
| Philadelphia | 35.30 |
| Chicago | 31.00 |
| Forging, Chicago | 36.00 |
| Forging, Pittsburgh | 36.00 |
| Forging, Philadelphia | 40.30 |

**SHEET BARS**

| | |
|---|---|
| Pittsburgh | 30.00 |
| Youngstown | 30.00 |
| Cleveland | 30.00 |
| Chicago | 31.00 |

**SLABS**

| | |
|---|---|
| Pittsburgh | 30.00 |
| Youngstown | 30.00 |
| Cleveland | 30.00 |

**WIRE RODS**

| | |
|---|---|
| Pittsburgh, Cleveland | 35.00 to 37.00 |
| Chicago | 38.00 |

**SKELP**

| | |
|---|---|
| All grades, Pittsburgh | 1.60c |

## Ferroalloys

**(In dollars, except Ferrochrome)**

| | |
|---|---|
| •Ferromanganese, 78-82%, tidewater, duty paid | $85.00 |
| •Ferromanganese, del. Pittsburgh | 89.79 |
| Spiegeleisen, 19-20%, domestic fur. spot† | 30.00 |
| Ferrosilicon, 50 per cent, freight all., c. l. | 83.50 |
| Do, less carload | 88.50 |
| Do, 75 per cent | 130.00 to 150.00 |
| Ferrochrome, 66-70 chromium, 4-6 carbon, cts. lb., con., del. | 11.00 |
| Do, for spot delivery | 11.50 |
| Ferrotungsten, stand., lb. cont. | 1.10 to 1.15 |
| Ferrovanadium, 30-40 per cent, per lb., contained, on analysis | 3.15 to 3.65 |
| Ferro-carbon-titanium carload producers' plants, net ton | 150.00 |
| Do, one-ton to c. l. | 170.00 |
| Ferrophosphorus, per ton, carload 17-19 per cent, Rockdale, Tenn., basis (18 per cent) | 91.00 |
| Ferrophosphorus, electrolytic per ton carload, 23-25% f.o.b. Anniston, Ala., 24% | 122.50 |

†Carloads. Differentials apply to large quantities.

•To users of carloads to 500 tons annually. Differentials apply to users of larger quantities.

## Fluorspar

**85 and 5 per cent grade**

| | |
|---|---|
| Washed gravel Kentucky and Illinois mines, per net ton | $14.00 to 14.50 |
| Washed gravel, import duty paid east, tide, gross ton | 19.00 |

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# Pig Iron

**Shipments Slower — Eastern Market Easier—Ohio Melter Buys 10,000 Tons of Foundry**

PIG IRON PRICES, PAGE 78

**Pittsburgh**—Recent orders for pig iron are lighter than early in April. Shipments are steady and slightly heavier than a month ago. They are moderately ahead of production, although output is limited to two strictly merchant stacks. This is resulting in further reduction of furnace stocks, which are light. Buying is limited to small lots. Prices are steady.

**Boston**—Pig iron sales in the New England district were increased considerably during the past week to 6000 tons. The Draper Corp., Hopedale, Mass., purchased 3000 to 4000 tons. It is intimated that a Buffalo furnace which had been quoting $16, base, furnace, cut its price as much as $1 a ton to obtain a portion of the order. The remainder was placed with eastern Pennsylvania makers.

**New York**—Pig iron sales in this district in the past week aggregated 5000 tons, little changed from the volume in recent weeks. Inquiry is light. The A. P. Smith Mfg. Co., Bloomfield, N. J., awarded 500 tons to the Everett, Mass., furnace. Buffalo iron is unchanged at $15 to $16, furnace, for delivery in this territory. Southern is $16.50, delivered.

**Philadelphia**—The $17 eastern furnace base price on pig iron has been reduced 50 cents on relatively small business. Malleable and basic prices are steady, although the latter are untested. Malleable is moving better than foundry grades, with 500 tons of malleable topping the week's sales. Forty-six hundred tons of Indian iron arrived at Philadelphia one day recently.

**Buffalo**—Demand was better during the past week. At least one local producer now is quoting $15, minimum, on iron for eastern shipment, this being 50 cents lower than formerly. One inquiry for about 1500 tons of foundry iron is pending. It is reported the Canadian Furnace Co. stack at Port Colborne, Ont., will be relighted shortly, after months of idleness.

**Youngstown, O.**—Small lots of malleable and No. 2 foundry pig iron, with occasional sales of standard low-phosphorus continue to make up the rather insignificant tonnages moving from furnaces to consumers, aside from the molten metal delivered to adjacent ingot mold shops when they are operating. No. 2 foundry, bessemer, malleable and basic continue $17, valley furnace, with No. 3 foundry and gray forge iron bringing 50 cents less.

**Cleveland**—Pig iron sales by furnace interests with headquarters in Cleveland were increased to 26,000 tons in the past week, including one order for 10,000 tons of foundry iron, booked by a Cleveland producer for an Ohio consumer. Delivery of the latter orders is to be completed by August. It is reported $16, base, was the minimum applied on Cleveland iron for outside shipment. The price for delivery in the local switching area remains $17, base, furnace. Lake furnaces hold to $16 to $17, base, for delivery in western and southern Ohio and in central and eastern Indiana. Some companies report a slackening in pig iron shipments, especially to automotive foundries, but the daily average for April as a whole is little changed from that of March.

**Cincinnati**—Small orders account for a total of slightly less than 2000 tons sold in this district during the past week, showing no variance in the weekly average since March 1. An Ohio firm bought 300 tons of northern iron, the largest reported. Inquiry also is light.

**Chicago**—Reduction in consumption by automotive foundries is slowing pig iron shipments. Railroad equipment orders are spotty, but stove foundries are active. Buyers exert a little pressure on the base price of $17.50, but it is not expected a reduction would increase business. Silvery and southern iron shipments into western Michigan are fair. A Milwaukee melter closed a small order for silvery iron to be shipped from an eastern furnace's stock at Chicago docks.

**St.Louis**—Despite scant buying in recent months the carryover into second quarter represents a formidable total, and new orders are lacking. Prices are unchanged, at $11, base, furnace, for southern iron, and $17.50, furnace, for northern. Not enough business is developing to test these figures.

**Birmingham, Ala.**—Few melters are covering their repuirements for more than a month, and many are not going beyond ten days. Small orders continue fairly plentiful. The base price continues $12 to $13, for delivery in the local district.

**Toronto, Ont.**—Following a fairly active buying movement the first of the month business again is in the doldrums. The daily melt is about 60 to 65 per cent. Prices are unchanged.

## Ferroalloy Shipments Slower Than Month Ago

Ferroalloy Prices, Page 78

**Pittsburgh**—Specifications for ferroalloys continue quiet. Hesitation in steelmaking operations is restricting demand for ferromanganese and spiegeleisen, and shipments of these grades are off slightly since a month ago. Prices generally are steady. The spot market for ferromanganese continues $89.79, delivered, for small lots, with spiegeleisen $30, furnace. Ferrotungsten is $1.10 to $1.15.

**New York**—Ferromanganese shipments have slowed down. The price continues $85, duty paid, per ton, for carloads. Spiegeleisen, 19 to 20 per cent, is $30, furnace. Little spot buying is noted.

Shipments of special ferroalloys, such as chrome, silicon and vanadium are not as large as recently, but are holding up well. Prices are firm. The tungsten market continues dull and weak, with future wolframite about $11, a short ton unit, duty paid, and spot is $11.50. Domestis scheelite is quoted $12.

**Chicago**—Steel foundries are submitting more active specifications for ferroalloys. No spot buying of spiegeleisen is noted.

## Tin Plate Orders from Some Consumers Heavier

Tin Plate Prices, Page 67

**Pittsburgh**—Tin plate specifications are well maintained. Operations by several independent producers continue at capacity but reduced schedules at several plants lowers the average for the industry a few points to 80 per cent. Specifications have been due recently for June shipment, and although this rule is not observed generally orders from some consumers have been heavy. Specifications indicate a fairly steady trend in production for the next 30 days.

**New York**—Most tin plate sellers here report they are behind on shipments from two to four weeks on stock sizes, and 12 weeks on specialties. This activity reflects little spot buying, however. The market is $5, per base box, Pittsburgh.

# Scrap

**Continued Decline Shown in Prices—Melters Reduce Shipments—Buying Negligible**

**Chicago**—Sweeping reductions in virtually all iron and steel scrap grades have been made effective in this market following several weeks of heavy distress offerings. Reductions of 50 cents to $1 are noted in revised asking prices of dealers. Average cuts are about 75 cents. Many of these prices apparently do not represent bottom, as buyers nominally are in control and could name still lower acceptable figures if they were disposed to order. Heavy melting steel was carried to a range of $9.50 to $10, the lowest since second quarter of 1915. Weakness became more pronounced following withdrawal of 75 cars of scrap from the market by the Chicago Great Western railroad because prices were held unsatisfactory. This, with oth-

## Iron and Steel Scrap Prices

**Corrected to Tuesday noon. Gross tons delivered to consumers, except where otherwise stated.**

### HEAVY MELTING STEEL

| | |
|---|---|
| Birmingham | 9.00 to 10.25 |
| Boston, dealers | 6.50 to 7.10 |
| Buffalo, No. 1 | 10.50 to 11.00 |
| Buffalo, No. 2 | 9.00 to 9.50 |
| Chicago | 9.50 to 10.00 |
| Cinci., deal. | 8.75 to 9.25 |
| Cleve., No. 1 | 9.75 to 10.00 |
| Cleve., No. 2 | 9.25 to 9.50 |
| Det., No. 1 deal. | 8.50 to 9.00 |
| Det., No. 2 deal. | 7.25 to 7.75 |
| E. Pa. del. mill | 10.00 to 11.00 |
| N. Y. deal. R. R. | 7.00 |
| N. Y. deal. No. 2 | 5.00 |
| N. Y, deal. yd. | 5.00 |
| Pitts., No. 1 | 12.00 to 12.50 |
| St. L. No. 1 sel | 8.75 to 9.25 |
| Federal, Ill. | 8.50 to 9.00 |
| Granite City, Ill. | 8.00 to 8.50 |
| Valleys, No. 1 | 11.25 to 11.75 |

### COMPRESSED SHEETS

| | |
|---|---|
| Buffalo, dealers | 9.00 to 9.50 |
| Chicago | 7.50 to 8.00 |
| Cleveland | 8.50 to 8.75 |
| Detroit, dealers | 8.25 to 8.75 |
| E. Pa. new mat. | 9.00 to 10.00 |
| Pittsburgh | 11.75 to 12.25 |
| Valleys | 10.75 to 11.25 |

### BUNDLED SHEETS

| | |
|---|---|
| Buffalo | 6.75 to 7.25 |
| Cinci., deal. | 8.25 to 8.75 |
| Cleveland | 7.00 to 7.25 |
| Eastern Pa. | 8.50 |
| Pittsburgh | 11.00 to 11.50 |
| St. Louis | 5.50 to 6.00 |

### SHEET CLIPPINGS LOOSE

| | |
|---|---|
| Chicago | 4.50 to 5.00 |
| Cincinnati | 4.75 to 5.25 |
| Detroit, dealers | 5.50 to 6.00 |
| St. Louis | 5.50 to 6.00 |

### STEEL RAILS SHORT

| | |
|---|---|
| Birmingham | 12.00 to 12.50 |
| Boston, dealers | 5.50 to 7.10 |
| Buffalo | 13.75 to 14.25 |
| Chicago (3 ft.) | 10.75 to 11.25 |
| Chicago (2 ft.) | 11.50 to 12.00 |
| Cinci., deal. | 13.75 to 14.25 |
| Detroit, deal. | 11.50 to 12.00 |
| Pitts. (open-hearth, 3 ft and less) | 14.50 to 15.00 |
| St. Louis | 12.00 to 12.50 |

### STOVE PLATE

| | |
|---|---|
| Birmingham | 8.00 to 8.50 |
| Boston, con. | 8.00 to 8.50 |
| Buffalo | 8.75 to 9.00 |
| Chicago, net | 7.50 to 8.00 |
| Cinci., deal. net | 5.25 to 5.75 |
| Det., net, deal. | 6.25 to 6.75 |
| Eastern Pa. | 9.00 to 9.50 |
| N. Y., deal. mill | 4.75 |
| St. Louis | 7.75 to 8.25 |

### COUPLERS, SPRING

| | |
|---|---|
| Buffalo | 13.50 to 14.00 |
| Chicago | 11.00 to 11.50 |
| Eastern Pa. | 16.50 |
| Pittsburgh | 15.50 to 16.00 |
| St. Louis | 9.50 to 10.00 |

### ANGLE BARS—STEEL

| | |
|---|---|
| Chicago | 10.50 to 11.00 |
| St. Louis | 8.50 to 9.00 |

### LOW PHOSPHORUS

| | |
|---|---|
| Buff., billets and bloom crops | 15.00 to 15.50 |
| Cleveland bil. and bloom crops | 14.00 to 14.50 |
| Eastern Pa. | 17.00 |
| Pittsburgh billet bloom crops | 17.00 to 18.00 |
| Pitts. sheet bar crops | 16.50 to 17.00 |

### FROGS, SWITCHES

| | |
|---|---|
| Chicago | 9.75 to 10.25 |
| St. Louis | 9.00 to 9.50 |

### SHOVELING STEEL

| | |
|---|---|
| Chicago | 9.50 to 10.00 |
| Cleveland | 6.75 to 7.00 |
| St. Louis | 8.50 to 9.00 |

### RAILROAD WROUGHT

| | |
|---|---|
| Birmingham | 8.50 to 9.00 |
| Boston, dealers | 8.00 to 8.50 |
| Buffalo, No. 1 | 8.00 to 8.50 |
| Buffalo, No. 2 | 10.50 to 11.00 |
| Chicago, No. 1 | 8.50 to 8.95 |
| Chicago, No. 2 | 9.50 to 10.00 |
| Cinci., No. 2 | 8.75 to 9.25 |
| Eastern Pa. | 11.00 |
| N. Y., No. 1 deal. | 10.00 to 10.50 |
| Pitts., No. 2 | 12.00 to 12.50 |
| St. Louis, No. 1 | 7.00 to 7.50 |
| St. Louis, No. 2 | 8.50 to 9.00 |

### SPECIFICATION PIPE

| | |
|---|---|
| Boston | 5.60 to 6.10 |
| Eastern Pa. | 11.50 to 12.00 |
| N. Y., deal. | 7.25 to 7.50 |

### BUSHELING

| | |
|---|---|
| Buffalo, No. 1 | 9.00 to 9.50 |
| Chicago, No. 1 | 7.25 to 7.75 |
| Cinn., No. 1 dl. | 7.25 to 7.75 |
| Cinn., No. 2 | 4.25 to 4.75 |
| Cleve., No. 2 | 6.25 to 6.50 |
| Det., No. 1 new deal. | 6.75 to 7.25 |
| St. L., No. 1 | 6.00 to 6.50 |
| Val. new No. 1 | 10.00 to 10.50 |

### MACHINE TURNINGS

| | |
|---|---|
| Birmingham | 6.50 to 7.00 |
| Boston, dealers | 2.00 to 2.25 |
| Buffalo | 5.00 to 5.50 |
| Chicago | 4.25 to 4.75 |
| Cinn., deal. | 4.50 to 5.00 |
| Cleveland | 4.25 to 4.75 |
| Detroit | 3.00 to 3.50 |
| Eastern Pa. | 7.00 to 7.50 |
| N. Y., deal. | 3.00 |
| Pittsburgh | 7.00 to 7.50 |
| St. Louis | 4.00 to 4.50 |
| Valleys | 7.00 to 7.25 |

### BORINGS AND TURNINGS
**For Blast Furnace Use**

| | |
|---|---|
| Boston | 2.00 to 2.50 |
| Buffalo | 6.00 to 6.50 |
| Cinn., deal. | 4.50 to 5.00 |
| Cleveland | 6.50 to 6.75 |
| Detroit, deal. | 3.50 to 4.00 |
| Eastern Pa. | 6.00 to 7.00 |
| N. Y., deal. | 3.00 |
| Pittsburgh | 7.00 to 8.00 |

### CAST IRON BORINGS

| | |
|---|---|
| Birming., chem. | 12.50 to 13.00 |
| Birming., plain | 6.50 to 7.00 |
| Boston, chem. | 9.10 to 9.60 |
| Boston, deal. | 2.00 to 2.50 |
| Buffalo | 6.00 to 6.50 |
| Chicago | 4.50 to 5.00 |
| Cinn., deal. | 4.50 to 5.00 |
| Cleveland | 6.50 to 6.75 |
| Detroit, deal. | 3.50 to 4.00 |
| Eastern Pa. | 7.00 to 7.50 |
| E. Pa., chem. | 13.50 to 14.50 |
| N. Y., deal. | 3.00 |
| Pittsburgh | 7.00 to 8.00 |
| St. Louis | 5.50 to 6.00 |

### PIPE AND FLUES

| | |
|---|---|
| Cinn., deal. | 7.50 to 8.00 |

### RAILROAD GRATE BARS

| | |
|---|---|
| Buffalo | 7.25 to 7.75 |
| Chicago, net | 6.75 to 7.25 |
| Cincinnati | 7.00 to 7.50 |
| Eastern Pa. | 9.00 to 9.50 |
| N. Y., deal. | 6.00 |
| St. Louis | 6.00 to 6.50 |

### FORGE FLASHINGS

| | |
|---|---|
| Boston, deal | 5.50 to 6.00 |
| Buffalo | 9.00 to 9.50 |
| Cleve. ov. 10 in. | 7.25 to 7.75 |
| Detroit | 7.00 to 7.50 |

### FORGE SCRAP

| | |
|---|---|
| Boston, del. | 5.00 to 5.50 |
| Chicago | 12.25 to 12.75 |
| Eastern Pa. | 10.50 to 11.00 |

### ARCH BARS, TRANSOMS

| | |
|---|---|
| Chicago, net | 10.50 to 11.00 |
| St. Louis | 10.00 to 10.50 |

### AXLE TURNINGS

| | |
|---|---|
| Boston, deal. | 6.75 to 7.00 |
| Buffalo | 9.25 to 9.75 |
| Chi., steelworks | 7.50 to 8.00 |
| Cleveland | 8.00 to 8.50 |
| Eastern Pa. | 11.00 |
| Pittsburgh | 10.00 to 10.50 |
| St. Louis | 7.00 to 7.50 |

### STEEL CAR AXLES

| | |
|---|---|
| Birmingham | 14.00 to 14.50 |
| Boston, ship. pt. | 14.00 to 15.00 |
| Buffalo | 15.50 to 16.00 |
| Chicago | 13.70 to 14.30 |
| Eastern Pa. | 18.50 to 19.50 |
| St. Louis | 12.50 to 13.00 |

### SHAFTING

| | |
|---|---|
| Bos., ship. pt. | 13.00 to 13.50 |
| Chicago | 10.10 to 10.65 |
| N. Y., deal. | 13.00 to 14.00 |
| St. Louis | 10.50 to 11.00 |
| E. Penna. | 18.00 |

### CAR WHEELS

| | |
|---|---|
| Birming., iron | 10.00 to 10.50 |
| Boston, iron | 14.00 to 14.50 |
| Buffalo, iron | 12.00 to 12.50 |
| Buffalo, steel | 13.50 to 14.00 |
| Chicago, iron | 9.25 to 9.75 |
| Chi., roll steel | 11.50 to 12.00 |
| Cincinnati, iron | 10.50 to 11.00 |
| E. Pa. steel | 15.00 to 15.50 |
| E. Pa. iron | 13.50 to 14.00 |
| Pitts., iron | 13.00 to 13.50 |
| Pitts., steel | 15.50 to 16.00 |
| St. Louis, iron | 8.00 to 8.50 |
| St. Louis, steel | 11.00 to 11.50 |

### NO. 1 CAST SCRAP

| | |
|---|---|
| Birmingham | 10.00 to 10.50 |
| Buffalo (mach.) | 10.50 to 11.00 |
| Boston, textile | 10.00 to 10.50 |
| Chicago, mach. | 9.80 to 10.35 |
| Chi., railroad | 8.70 to 9.25 |
| Chicago, agri. | 8.40 to 8.95 |
| Cinn., mach. cup, gross | 13.00 to 13.50 |
| Cleve. cupola | 12.00 to 12.50 |
| Det., net deal. | 8.50 to 9.00 |
| E. Pa. cupola | 13.00 |
| N. Y. cup deal. | 8.00 to 8.50 |
| N. Y., del. local foundries | 12.00 |
| Pitts., cupola | 12.00 to 12.50 |
| San Fran., del. | 13.50 to 14.00 |
| Seattle | 8.50 to 9.00 |
| St. L. No. 1 ma. | 9.00 to 9.50 |
| St. L. No. 1 | 8.50 to 9.00 |

### HEAVY CAST

| | |
|---|---|
| Boston | 10.50 to 11.00 |
| Bos. mach. cast | 11.50 to 12.50 |
| Buffalo, break | 7.50 to 8.00 |
| Cleve., break | 6.50 to 7.00 |
| Detroit, auto, net deal. | 10.50 to 11.00 |
| Det., break., dl. | 6.50 to 7.00 |
| Eastern Pa. | 11.00 |
| N. Y. No. 1 dl. | 8.00 to 8.50 |
| N. Y. break. dl. | 7.00 to 7.50 |
| Pittsburgh | 9.00 to 9.50 |

### MALLEABLE

| | |
|---|---|
| Boston R. R. | 13.00 to 13.50 |
| Buffalo | 11.50 to 12.00 |
| Chicago, agri. | 10.00 to 10.50 |
| Chicago, R. R. | 11.25 to 11.75 |
| Cinn., R. R. dl. | 11.50 to 12.00 |
| Cinn, agri., dl. | 12.00 to 12.50 |
| Cleveland, rail | 12.00 to 12.50 |
| Det. auto deal. | 10.50 to 11.00 |
| St. Louis, rail | 9.00 to 9.50 |

### RAILS FOR ROLLING
**5 feet and over**

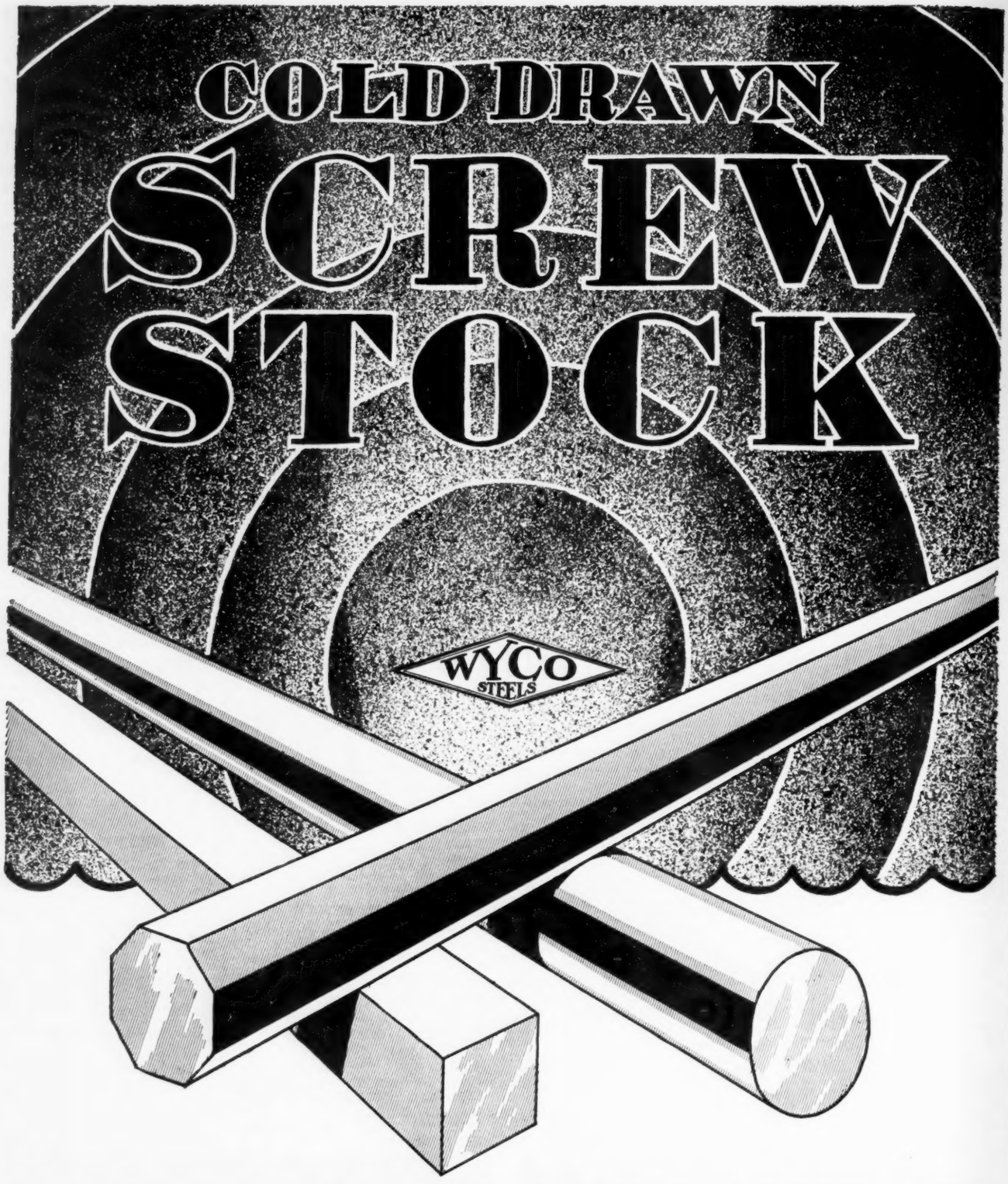
| | |
|---|---|
| Birmingham | 10.25 to 10.75 |
| Boston | 8.50 to 9.00 |
| Buffalo | 10.75 to 11.25 |
| Chicago | 11.75 to 12.25 |
| Eastern Pa. | 13.00 to 13.50 |
| New York | 9.00 to 9.50 |
| St. Louis | 10.25 to 10.75 |

### LOCOMOTIVE TIRES

| | |
|---|---|
| Chicago, cut | 12.00 to 12.50 |
| St. L. No. 1 | 11.00 to 11.50 |

### LOW PHOS. PUNCHINGS

| | |
|---|---|
| Chicago | 11.25 to 11.75 |
| Buffalo | 14.00 to 14.50 |
| Eastern Pa. | 15.50 to 16.50 |
| Pittsburgh | 15.00 to 15.50 |




# WYCKOFF DRAWN STEEL COMPANY

*General Offices:*
FRICK BLDG., PITTSBURGH, PA.

*Mills at:*
AMBRIDGE, PA. and CHICAGO

*Sales Offices:*

BOSTON—627 New C. of C. Bldg.
ST. LOUIS—Planters Bldg.
CLEVELAND—Rockefeller Bldg.
BUFFALO—1312 Liberty Bank Bldg.
DAYTON—1128 The 3rd Nat'l Bldg.
MILWAUKEE—288 E. Water St.
DENVER—1037 U. S. Nat'l Bank Bldg
MINNEAPOLIS—332 Builders Exchange
PHILADELPHIA—133 So. 36th St.

*Chicago Office: 3200 So. Kedzie Ave.*
*Detroit Office and Warehouse: 6189 Hamilton Ave.*
Pacific Coast Representatives: F. H. Currie, 309 Pacific Mutual Bldg., Los Angeles, Cal.

er unsold railroad scrap hanging over the market, has tended almost to demoralize sentiment. Much scrap held back during the winter for higher prices this spring also is being eased into the market. Despite the weakened market, sentiment regarding local steelworks operations later in the summer has improved.

**Boston**—While there have been reports of some weakness for scrap materials in the Pittsburgh district, this has failed to show in New England probably because no business is being done. The only scrap moving here has been for local consumption and this has displayed a slackening in the last week.

**Philadelphia**—Reflecting sluggish demand prices of steel and iron scrap are softer. No. 1 melting steel is $10 to $10.50, delivered, and No. 2

## Canadian Scrap

**Dealers' Buying Prices**

**MONTREAL**

**Per Gross Ton**

| | |
|---|---|
| Iron axles | $11.00 |
| Steel axles | 10.00 |
| Car wheels | 8.00 |
| Stove plate | 8.00 |
| Wrought pipe | 2.00 |
| Turnings | 2.00 |
| Heavy melting steel | 6.00 |

**TORONTO**

| | |
|---|---|
| Steel axles | 7.00 |
| Iron axles | 7.00 |
| Heavy melting steel | 7.00 |
| Turnings | 2.00 |
| No. 1 mach. cast (net) | 9.00 |
| Malleable (net) | 7.00 |

is $8 to 8.50, while machine turnings are $6.50 to $7. While Lukens Steel Co. is taking some steel against contracts Bethlehem Steel Co. has placed a ban on shipments of unprepared scrap.

**Buffalo**—Reports are current here that while Bethlehem has reduced its offered price for steel produced in local yards, it has not changed the outside quotation. Locally Bethlehem will pay $9 for No. 2 and $10.50 for No. 1 heavy melting steel under the new offer, but outside dealers are getting 50 cents more for corresponding grades, it is said. Demand for blast furnace scrap has dropped sharply and several grades are quoted lower this week. There is practically no new demand for scrap of any grade.

**Pittsburgh**—Steel and iron scrap has been at a standstill since the general decline in prices a week ago. Buying is limited to small lots and larger consumers are not interested in purchases. Prices on most grades are nominal in absence of buying, but unchanged. Heavy melting steel continues at $12 to $12.50.

**Cleveland**—Iron and steel scrap remains inactive. Mills continue to hold up shipments on all grades. Yard operations have been reduced to a minimum with the majority taking only industrial scrap. Yard stocks are the heaviest in years. Some scrap is moving to Warren and Lowellville, O., and Weirton, W. Va. Included are melting steel, compressed sheets and forge flashings. Quotations show further weakening tendency but are largely nominal. Valley activity is restricted with regard to both shipments and sales.

**Detroit**—Further declines in price reflect the weakness prevailing under large offerings and small buying. Quotations are off 25 cents to $1 on various grades.

**Cincinnati**—Several grades of iron and steel scrap are quotable lower, although the dull market has provided meager test of prices. Specifications against contracts are light, and new buying is infrequent and for small lots.

**St. Louis**—Aside from transactions among dealers buying of iron and steel scrap is almost at a standstill. Small lots of special grades are taken from time to time, but purchasing in volume is absent. Many consumers have liberal supplies, and are making every effort to cut down inventories. There is a disposition among both mills and foundries to use up what they have to the final ton before entering the market for additional tonnage.

**Birmingham, Ala.**—Steel and iron scrap is moving in limited tonnages, for immediate needs only. Prices are weak at the present low level and heavy melting steel has $10.25 as its top.

**Toronto, Ont.**—The iron and steel scrap market is comparatively quiet. Some business is being done in steel scrap with Hamilton mills but sales are small. Dealers are still out of the market for most lines of scrap and are satisfied with yard holdings. Prices are unchanged.

## Refractories Sales Slow As Steelmaking Lags

**Refractories Prices, Page 78**

Pittsburgh—Sales of refractory materials are lagging, business so far in April being off moderately from the volume a month ago. Steel plants are light buyers of brick for repair, influenced by continued restriction in steelmaking activity. New construction also is requiring only small lots and business of this nature is considerably lighter than a year ago. Prices are holding fairly well in this district, following a reduction a short time ago of $3 per 1000 on first quality fire clay brick and silica brick. The current market is $40 for each, magnesite brick continuing $65.

Johnston Tool & Die Co., Chicago, has increased its stock from $15,000 to $30,000.

# Coke

**New Orders Continue to Shrink —Foundry Demand Less Than Last Month—Furnace Quiet**

**COKE PRICES, PAGE 78**

**Pittsburgh**—The market for beehive coke is dull, shipments and new business tending downward slowly. New buying of furnace fuel is quiet, and the usual price is $2.50. Foundry demand is off slightly since a month ago, but has changed little recently. Prices are steady.

**New York**—Beehive furnace coke is available here at $2.25, Connellsville, Pa. Standard beehive foundry coke is $3.25. By-product coke prices are unchanged. The market is sluggish.

**Cincinnati**—By-product foundry coke shipments have dipped slightly, following recent improvement in specifications. New contracting is light. Quotations remain $9, delivered, Cincinnati.

**Boston**—Coke consumption remains low and foundries are well supplied on contracts, the spot market continuing quiet.

**St. Louis**—April shipments thus far are below the daily average for March. New orders are small and production continues curtailed. Foundry coke remains $9, delivered in this district.

**Birmingham, Ala.**—More than three-fourths of the total number of by-product coke ovens here are in operation, and shipments continue to be made to other southern and southwestern districts.

# Pacific Coast

**Two Projects Requiring 110,000 and 30,000 Tons of Steel Cause Interest—Other Lots Small—Business in Northwest Slow to Make Recovery — Prospective Tonnages Are Mostly Small**

**San Francisco**—(*By Air Mail*)—While awards of steel products were not heavy this week, fabricators and steel mill representatives are keenly interested in two large projects about ready for release. Bids are to be called for shortly on 110,000 tons of structural steel and cable for the Golden Gate bridge across San Francisco bay, the largest structural project ever to come up for figures on the Pacific Coast. Another Hetch Hetchy pipe line, involving 30,000 tons of plates, will be released for figures within ten days.

### Bars, Shapes and Plates

Concrete bar awards aggregated 1409 tons, bringing the total for the year to 18,559 tons as compared with 12,906 tons for the corresponding period in 1930. An office building in Pomona, Calif., involving 100 tons, was placed with an unknown company as was also 123 tons for highway work in Santa Barbara County, Calif. Pending business involves close to 9000 tons, the largest single project calling for 4000 tons for the Sixth Street bridge, Los Angeles. Los Angeles out-of-stock prices are firm at 2.50c, base on carload lots, while San Francisco quotations are firm at 2.60c, base.

No awards of size were reported in the plate market this week. Awards so far this year total 62,365 tons, compared with 15,449 tons for the same period a year ago. Prices range from 2.00c, to 2.05c, c.i.f.

Demand for structural shapes remains light and awards totaled less than 1000 tons. So far this year bookings aggregate 35,858 tons, compared with 30,764 tons for the corersponding period in 1930. McClintic-Marshall Corp. secured 815 tons for a hangar at Pearl Harbor. New inquiries involve 113 tons for a bridge over the Trinity river, Calif., and 650 tons for an addition to a hospital in Los Angeles. Prices on plain material continue unchanged at 2.05c, to 2.15c, c.i.f.

### Other Finished Material

Only two cast iron pipe awards were reported. Los Angeles placed 2725 tons of 16 and 24-inch pipe with the Utilities Equipment Corp., representing R. D. Wood & Co. Bids have been asked on 2896 tons of 6 and 12-inch pipe for Los Angeles. No new inquiries of importance developed during the week. Awards to date this year aggregate 27,890 tons, compared with 30,632 tons for the same period last year. Standard steel pipe continues to move in small lots only.

No change is noted in quotations on blue annealed, black and galvanized sheets, which are holding at 2.50c, 3.00c, 3.50c, base, c.i.f. respectively. Sales and inquiries continue to be confined to small lots for the most part.

## Coast Pig Iron Prices

| | |
|---|---|
| Utah basic | $22.00 to 24.00 |
| Utah foundry | 22.00 to 24.00 |
| *German | 24.25 |
| *Indian | 22.00 to 24.00 |

*C.i.f. duty paid.

## Change to Better Is Slow

**Seattle** — Business conditions in the Pacific Northwest are improving slowly. Many important projects are being held in abeyance or are developing gradually. In the meantime demand for iron and steel products is below normal, much of it for lots of less than 100 tons.

Foundry activity remains low in Washington and Oregon, due largely to subnormal operations in logging and restricted activity in the canning industry.

### Bars, Plates and Shapes

Mill prices are unchanged, merchant bars 2.15c, shapes, 2.05c and plates 2.00c. Some steel is being imported but is reported to be on a close margin considering low prices for domestic output. Merchant bars are not in strong demand.

Local mills have few important specifications up for figures. Considerable business in car lots has been booked but large projects are lacking. Pacific Coast Steel Co., Seattle, has been awarded 400 tons of reinforcing material for the 14-story Yakima, Wash., community hotel. Lindstrom & Feigenson, Portland, have the contract for the Link river bridge, Klamath Falls, Oreg., involving 100 tons or more of concrete steel. Contracts pending include 350 tons for the Sixth avenue garage, Seattle, and 100 tons or more for the Renton, Wash., high school.

Jobs involving plates are lacking and nothing of importance is up except about 400 tons for four steel barges for the United States Army engineers, bids to be opened at Portland, April 28. Plans for two large water tanks at Seattle are not yet completed.

Local fabricating plants have a fair amount of work on hand. There has been considerable activity in small jobs involving shapes but no important projects have developed. Awards this week include 230 tons to the Pacific Car & Foundry Co., Seattle, for a bridge in Snohomish county, Wash., and 105 tons to the Hofius Steel & Equipment Co., Seattle, for the King County hangar, awarded through the Austin Co., general contractors. General contract for the Nechako bridge, British Columbia, went to Stuart Cameron & Co. Ltd., Vancouver, B. C., involving about 200 tons, sublet to an unnamed interest. Star Iron Works, Tacoma, Wash., will fabricate a steel conveyor for the Pioneer Sand & Gravel Co., Seattle, about 40 tons of steel.

No improvement is noted in the wholesale jobbing trade. Business is confined to small tonnages. Prices are being maintained.

Seattle municipal street railway has $180,000 available for immediate improvements and extensions.

### Pipe Needs Mostly Small

General contract has not yet been officially awarded for the main waterworks extension on Eighth avenue south extension at Seattle, involving 843 tons of 20 and 24-inch cast iron pipe. It is understood that French pipe is likely to be bought by the low bidder. E. B. Link, Wenatchee, has the contract for furnishing 130 tons of 10-inch cast iron pipe for that city, pipe to be furnished by an unnamed interest. Vancouver, B. C., is soon to call bids for steel pipe for the Point Grey district improvement. Tacoma, Wash., has opened bids for a quantity of 18-inch cast iron pipe and another project involving 12-inch main is pending. Lease & Liegland, Great Falls, Mont., have the general contract for filtration plant and pump house for Great Falls, on a bid of $177,577, pumps and motors to be furnished by the Allis-Chalmers Co., Milwaukee.

Demand for steel and cast iron scrap is below normal. Reduced foundry operations have restricted the market here, and rolling mills have ample supplies.

# Steel, Wrought and Cast Iron Pipe, and Tubing

## Welded Iron, Steel Pipe

**Base Price $200 Ton**

Base Discounts on steel pipe, Pittsburgh and Lorain, O., to jobbers in carloads. Indiana Harbor, Ind., and Evanston, Ill., 2 points less. Chicago del., 2½ points less. Wrought iron pipe, Pittsburgh base.

**BUTT WELD**

| Steel In. | Blk. | Gal. | Iron In. | Blk | Gal. |
|---|---|---|---|---|---|
| ⅛ | 58 | 44½ | ⅛ | 23 | 5 |
| ¼ | 62 | 50½ | ¼ | 28 | 11 |
| 1—3 | 64 | 52½ | 1 and 1¼ | 31 | 15 |
| | | | 1½ and 2 | 35 | 18 |

**LAP WELD**

| | | | | | |
|---|---|---|---|---|---|
| 2 | 57 | 45½ | 2 | 23 | 9 |
| 2½—6 | 61 | 49½ | 2½—3½ | 28 | 13 |
| 7—8 | 58 | 45½ | 4—6 | 30 | 17 |
| 9—10 | 56 | 43½ | 7 and 8 | 29 | 16 |
| 11—12 | 55 | 42½ | 9—12 | 26 | 11 |

**BUTT WELD**

*Extra strong, plain ends*

| | | | | | |
|---|---|---|---|---|---|
| ½ | 55 | 44½ | ¼ & ⅜ | +13 | +48 |
| ¾ | 60 | 49½ | ½ | 23 | 7 |
| 1—1½ | 62 | 51½ | ¾ | 28 | 12 |
| 2—3 | 63 | 52½ | 1—2 | 34 | 18 |

**LAP WELD**

*Extra strong, plain ends*

| | | | | | |
|---|---|---|---|---|---|
| 2 | 55 | 44½ | 2 | 29 | 13 |
| 2½—4 | 59 | 48½ | 2½—4 | 34 | 20 |
| 4½—6 | 58 | 47½ | 4½—6 | 33 | 19 |
| 7—8 | 54 | 41½ | 7 and 8 | 31 | 17 |
| 9—10 | 47 | 34½ | 9—12 | 21 | 8 |
| 11—12 | 46 | 33½ | | | |

To large jobbers these discounts on steel pipe increased on black by 1 point and two discounts of 5 per cent; on galvanized by 1½ points with two 5 per cents. On iron pipe large jobbers obtain additional discount of 1 point with 5 and 2½ per cent on black and galvanized.

**BOILER TUBES**

| Carload Discounts, Lap Welded Steel | | f.o.b. Pittsburgh Charcoal Iron | |
|---|---|---|---|
| 2—2¼ | 38 | 1¾ | 8 |
| 2½—2¾ | 46 | 2—2¼ | 13 |
| 3 | 52 | 2½—2¾ | 16 |
| 3¼—3¾ | 54 | 3 | 17 |
| 4 | 57 | 3¼—3½ | 18 |
| 4½—6 | 46 | 4 | 20 |
| 1½ | 1 | 4½ | 21 |

On lots of a carload or more, above base discounts subject to preferential of two 5 per cent discounts on steel and 10 per cent on charcoal iron. Smaller quantities subject to following modifications from base discounts.

Lap Welded Steel—Under 10,000 pounds, 6 points under base and one 5 per cent; on 10,000 pounds to carload, 4 points under base and one 5 per cent; on 10,000 pounds to carload, 4 points under base and two 5 per cents. Charcoal Iron—under 10,000 pounds, 2 points under base; on 10,000 pounds to carload, base and one 5 per cent.

**STANDARD COMMERCIAL SEAMLESS BOILER TUBES**

**COLD DRAWN**

| | | | |
|---|---|---|---|
| 1 | 61 | 3 | 46 |
| 1¼—1½ | 53 | 3¼—3½ | 48 |
| 1¾ | 37 | 4 | 51 |
| 2—2¼ | 32 | 4½, 5, 6 | 40 |
| 2½—2¾ | 40 | | |

**HOT ROLLED**

| | | | |
|---|---|---|---|
| 2—2¼ | 38 | 3¼—3½ | 54 |
| 2½—2¾ | 46 | 4 | 57 |
| 3 | 52 | 4½, 5, 6 | 46 |

Subject to 5 per cent supplementary discount for carload lots. On less than 10,000 pounds, base discount reduced 6 points. On 10,000 pounds to carload, base discount reduced 4 points and one 5 per cent allowed. No extra for lengths up to and including 24 feet. Sizes smaller than 1 inch and lighter than standard gage to be held at mechanical tubes list and discount. Intermediate sizes and gages not listed take price of next larger outside diameter and heavier gage.

## Seamless Tubing

**Cold drawn; f.o.b. mill**

Random lengths over 5 ft. .....55%
Selected lengths, 1 to 18 ft. .....53%

## Cast Iron Water Pipe

**Class B Pipe—Per Net Ton**

Six-inch and over, Bir. ....$35.00 to 36.00
Four-inch, Birmingham .... 39.00 to 40.00
Four-inch, Chicago ..... 46.00 to 48.00
Six to 24-inch, Chicago..... 42.00 to 44.00
Six-inch and over, N. Y..... 37.50 to 39.50
Four-inch, New York..... 40.50 to 41.50
Stand. fittings, Bir. base.... $100.00

Six to 24-inch, base; over 24-inch plus $20; 4-inch, plus $10; 3-inch, plus $20; gas pipe fittings, $5 higher. Class A pipe $4 higher than Class B.

## Warehouse Quotations at Leading Centers, in Cents Per Pound

**STEEL BARS**

| | |
|---|---|
| Baltimore | 3.00c |
| Boston | 3.265c |
| Buffalo | 3.15c |
| Chattanooga.. | 3.10c |
| Chicago | 2.90c |
| Cincinnati | 3.15c |
| Cleveland | 2.85c |
| Detroit | 3.00c |
| Houston | 3.00c |
| Los Ang. | 3.40c |
| New York‡(d) | 3.10c |
| Philadelphia.. | 2.60c |
| Pittsburgh | 2.75c |
| Portland | 3.15c |
| San Frans. | 2.40c |
| Seattle | 3.15c |
| St. Louis | 3.15c |
| St. Paul | 3.00c |
| Tulsa | 3.65c |
| St. Louis | 3.15c |
| Tulsa | 3.65c |
| Young. | 2.30c-2.60c |

**IRON BARS**

| | |
|---|---|
| Baltimore | 3.25c |
| Boston | 3.265c |
| Buffalo | 3.15c |
| Chattanooga.. | 3.10c |
| Chicago | 3.00c |
| Cincinnati | 3.15c |
| Detroit | 3.00c |
| New York‡(d) | 3.10c |
| Philadelphia.. | 2.60c |
| St. Louis | 3.15c |
| Tulsa | 3.65c |

**REINFORC. BARS**

| | |
|---|---|
| Baltimore | 2.50c-3.31c |
| Boston | 3.265c |
| Buffalo | 2.95c |
| Chattanooga.. | 3.10c |
| Cincinnati | 3.15c |
| Cleveland | 2.25c-2.44c |
| Detroit | 3.00c |
| Houston | 3.00c |
| Los Ang. cl. | 2.40c |
| Los Ang. lcl. | 2.70c |
| New York | 2.65c-3.10c |
| Phila. | 2.40c-3.00c |
| Pittsburgh | 2.75c |
| San Fran. cl. | 2.30c |
| San Fran. lcl. | 2.50c |
| Seattle | 3.15c |

**SHAPES**

| | |
|---|---|
| Baltimore | 3.00c |
| Boston | 3.365c |
| Buffalo | 3.25c |
| Chattanooga.. | 3.20c |
| Chicago | 3.00c |
| Cincinnati | 3.25c |
| Cleveland | 2.95c |
| Detroit | 3.10c |
| Houston | 3.25c |
| Los Ang. | 3.40c |
| New York(d) | 3.10c |
| Philadelphia.. | 2.50c |
| Pittsburgh | 2.85c |
| Portland | 3.15c |
| San Fran. | 2.40c |
| Seattle | 3.15c |
| St. Louis | 3.25c |
| St. Paul | 3.10c |
| Tulsa | 3.75c |

**PLATES**

| | |
|---|---|
| Baltimore | 3.00c |
| Boston | 3.365c |
| Buffalo | 3.25c |
| Chattanooga.. | 3.20c |
| Chicago | 3.00c |
| Cincinnati | 3.25c |
| Cleveland, ¼-in. and thicker | 2.95c |
| Clev., 3/16-in. | 3.20c |
| Detroit | 3.10c |
| Det., 3/16-in. | 3.10c |
| Houston | 3.00c |
| Los Angeles.. | 3.40c |
| New York(d) | 3.30c |
| Philadelphia.. | 2.50c |
| Phila. floor.... | 5.10c |
| Pittsburgh | 2.85c |
| Portland | 3.15c |
| San Fran. | 2.40c |
| Seattle | 3.15c |
| St. Louis | 3.25c |
| St. Paul | 3.10c |
| Tulsa | 2.75c |

**NO. 10 BLUE**

| | |
|---|---|
| Baltimore | 3.25c |
| Boston | 3.915c |
| Buffalo | 3.50c |
| Chattanooga.. | 3.60c |
| Chicago | 3.35c |
| Cincinnati | 3.45c |
| Cleveland | 3.10c |
| Detroit | 3.35c |
| Houston | 3.90c |
| Los Ang. | 3.95c |
| N. Y. (d) | 3.00c-3.40c |
| Portland | 4.00c |
| Phila.*† | 3.05c |
| Pitts.** | 3.10c |
| San Fran. | 3.65c |
| Seattle | 4.00c |
| St. Louis | 3.45c |
| St. Paul | 3.40c |
| Tulsa | 3.95c |

**NO. 24 BLACK**

| | |
|---|---|
| Balt.*† | 3.50c |
| Boston | 4.70c |
| Buffalo | 4.20c |
| Chicago | 3.80c |
| Cincinnati | 3.90c |
| Clev.*** | 3.75c |
| Detroit | 3.75c |
| Los Ang. | 4.70c |
| New York | 3.50c-3.65c |
| Phila.*† | 3.60c |
| Pitts.** | 3.35c to 3.40c |
| Portland | 4.50c |
| San Fran. | 4.15c |
| Seattle | 4.50c |
| St. Louis | 3.95c |
| St. Paul | 3.545c |
| Tulsa | 4.10c |

**NO. 24 GAL. SHEETS**

| | |
|---|---|
| Balt.*† | 4.00c |
| Boston | 5.45c |
| Buffalo | 4.40c-4.60c |
| Chicago (local del.) | 4.35c |
| Chicago (outside) | 4.35c-4.60c |
| Cincinnati | 4.40c |
| Cleveland | 4.00c |
| Detroit | 4.25c |
| Houston | 5.40c |
| Los Ang. | 5.10c |
| New York | 4.00c-4.10c |
| Phila.*† | 4.15c |
| Pitts.** | 3.90c to 4.00c |
| Portland | 5.00c |
| San Fran. | 4.65c |
| Seattle | 5.00c |
| St. Louis | 4.40c |
| St. Paul | 4.23c |
| Tulsa | 4.60c-4.75c |

**BANDS**

| | |
|---|---|
| Baltimore | 3.50c |
| Boston | 4.015c-5.00c |
| Buffalo | 3.50c |
| Chattanooga.. | 3.30c |
| Chicago | 3.10c |
| Cincinnati | 3.35c |
| Cleveland | 3.10c |
| Det. 3/16-in. & lighter | 3.30c |
| Houston | 3.65c |
| Los Ang. | 4.30c |
| New York(d) | 3.40c |
| Philadelphia.. | 2.90c |
| Pittsburgh | 3.10c |
| Portland | 3.50c |
| San Fran. | 3.75c |
| Seattle | 4.15c |
| St. Paul | 3.75c |
| Tulsa | 3.85c |

**HOOPS**

| | |
|---|---|
| Baltimore | 3.50c |
| Boston | 5.50c-6.00c |
| Buffalo | 3.90c |
| Chicago | 3.65c |
| Cincinnati | 3.90c |
| Cleveland | 3.65c |
| Det. No. 14 & lighter | 3.80c |
| New York | 3.75c |
| Philadelphia.. | 3.15c |
| Pittsburgh | 4.10c |
| Seattle | 5.15c |
| St. Paul | 3.75c |

**COLD FIN. STEEL**

**Rounds & Hexagons**

| | |
|---|---|
| Baltimore (c) | 3.30c |
| Boston | 3.50c |
| Buffalo | 3.15c |
| Chattanooga* | 3.85c |
| Chicago | 3.35c |
| Cincinnati | 3.80c |
| Cleveland | 3.40c |
| Detroit | 3.65c |
| Los Ang. (a) | 4.50c |
| New York | 3.40c |
| Philadelphia* | 3.40c |
| Pittsburgh | 3.35c |
| Portland (a) | 4.50c |
| San Fran.(a) | 4.25c |
| Seattle (a) | 4.75c |
| St. Paul (a) | 3.85c |
| St. Louis | 3.60c |
| Tulsa | 4.75c |

Flats and squares 5½c extra, except Tulsa, where 5.14c is quoted.
(a) Rounds, hex. only.

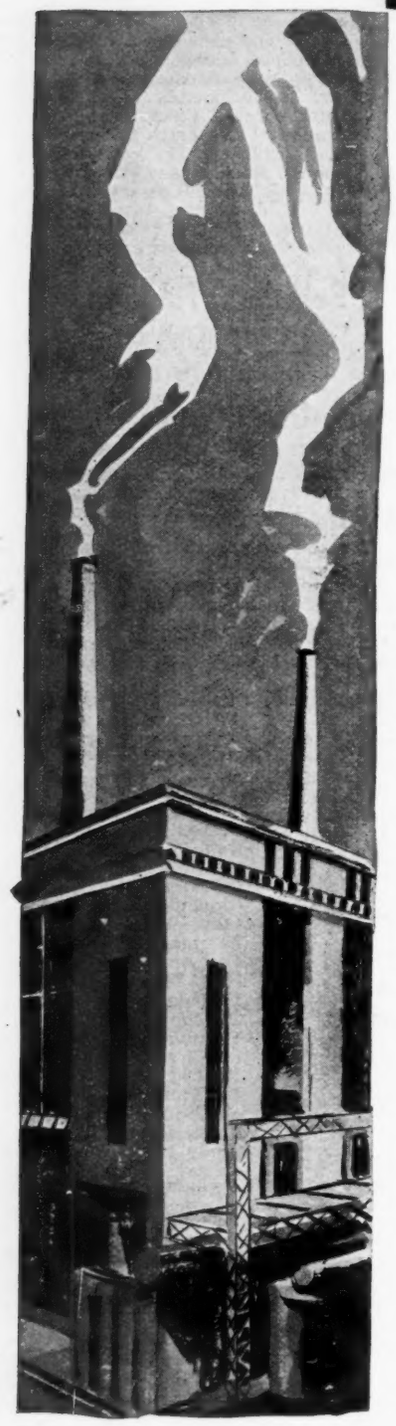
**COLD ROLL. STRIP**

| | |
|---|---|
| Boston 0.100 in., 500 lb. lots | 5.30c |
| Buffalo | 5.65c |
| Chicago (soft) (b) | 6.15c |
| Cincinnati | 6.10c |
| Clev. (b) | 5.95c |
| Detroit | 5.40c |
| Phila. (c) | 4.85c |
| New York | 5.05c |

(b) Net base straightening, cutting, boxing 1 ton or more.
(c) Plus mill, size and quantity extras.
(d) Minus quant. diff.
‡Domestic bars.
*Plus quantity extras.
**Less than 25 sheets.
*†50 or more bundles.

# *They* DO LAST

## *as good Boiler Tubes should*



TO the power plant operator, the most important factor about a boiler tube is its lasting qualities. Long periods of continuous operation together with the higher pressures and temperatures, require that the tubes have a combination of unusually effective qualities in their make-up in order to give lasting service.

Such qualities can only be produced through long years of special study and research in boiler tube problems . . . backed by unlimited facilities to handle every tube in expert fashion.

NATIONAL-SHELBY Boiler Tubes have over sixty years' experience behind them by the largest manufacturer of tubular products in the world, with every operation under the skillful hand of experts in boiler tube manufacture. Naturally, tubes produced under these conditions DO LAST. This characteristic has earned for them the reputation of . . .

*America's Standard Boiler Tubes*

NATIONAL TUBE COMPANY · Pittsburgh, Pa.

Subsidiary of United States Steel Corporation

U S STEEL

# NATIONAL SEAMLESS

## Mill Products

**Base price cents per pound f.o.b. mill, except otherwise specified. Copper and brass product prices based on 10.00c, Conn., for copper**

| | |
|---|---|
| **Sheets** | |
| Yellow brass (high) | 17.25 |
| Copper, hot rolled | 19.87½ |
| Lead, full sheets (cut ½c more) | 8.50 |
| Zinc sheet (100-lb. base) | 9.50 |
| **Tubes and Pipes** | |
| Seamless yellow brass (high) | 22.12½ |
| Seamless copper | 22.37½ |
| **Rods** | |
| Yellow brass (high, full turnings) | 15.50 |
| Naval brass | 16.50 |
| **Anodes** | |
| Copper, untrimmed | 17.37½ |
| **Wire** | |
| Yellow brass (high) | 17.75 |

## Old Metals

**Dealers' buying prices, cents lb.**

| | |
|---|---|
| **Heavy Red Brass** | |
| New York | 6.25 to 6.50 |
| Chicago | 5.50 to 6.00 |
| Cleveland | 6.50 to 7.00 |
| St. Louis | 6.25 to 6.50 |
| **Heavy Yellow Brass** | |
| New York | 4.25 to 4.50 |
| **Heavy Copper and Wire** | |
| New York | 7.25 to 7.50 |
| Boston | 7.00 to 7.25 |
| Chicago | 6.75 to 7.25 |
| Cleveland | 7.00 to 7.25 |
| St. Louis | 6.50 to 7.00 |
| **Red Brass Borings** | |
| New York | 6.25 to 6.50 |
| **Yellow Brass Tubing** | |
| Cleveland | 4.00 to 4.50 |
| **Light Copper** | |
| New York | 6.50 to 6.75 |
| Chicago | 5.75 to 6.00 |
| Cleveland | 6.00 to 6.25 |
| St. Louis | 6.50 |
| **Light Brass** | |
| Boston | 3.25 to 3.50 |
| Chicago | 3.00 to 3.25 |
| Cleveland | 2.75 to 3.00 |
| St. Louis | 3.50 to 3.75 |
| **Zinc** | |
| New York | 1.50 to 1.75 |
| Cleveland | 1.25 to 1.50 |
| St. Louis | 2.00 |
| **Aluminum** | |
| Clippings, soft, Cleveland | 12.00 to 14.00 |
| Clippings, hard, Cleveland | 9.00 to 11.00 |
| Borings, Cleveland | 5.00 to 5.25 |
| Mixed cast, Cleveland | 5.00 to 5.50 |
| Mixed cast, Boston | 4.00 to 4.50 |
| Mixed cast, St. Louis | 4.50 |

## Secondary Metals

| | |
|---|---|
| Remelt aluminum No. 12 | 10.50 |
| Brass ingots, 85-5-5-5 | 9.25 |

# Metals

**Low Prices Fail to Bring Out Active Buying—Copper, Zinc and Tin Continue Dull**

**New York**—New business in nonferrous metals is depresed with extremely low prices not attracting buyers. Prices of copper, zinc and tin have fallen during the past week but at the lower figures, sales have remained extremely light.

Some metal product prices have been reduced, especially copper wire and brass ingot, while brass mill products have remained on the basis of 10 cent copper. The first two are now on the basis of 9.75c copper. Business in mill products is small. Operations of most mills have changed little in the past few weeks.

**Copper**—Custom smelters cut to 9.50c, Connecticut, after business had dried up at 10 cents, and a cut to 9.75c had failed to bring out much response. Subsequently, the market showed much uncertainty, with indications at times of firming up to 9.75c, which some custom smelters had refused to cut. Producers remained out of the market to domestic buyers, though all sellers went to the new export price of 10.05c, c.i.f. With new business light, and consumers in this country bought well ahead, the outlook for new business in copper is not promising. Sellers believe European consumers are more in need of copper. Small tonnages exert a large influence at the moment.

**Zinc**—Prime western has fallen to 3.62½c, East St. Louis, the lowest in more than 30 years, but consumers apparently have no interest whatever in the apparent "bargain." Most producers are not pressing the market, and some of them would sell only limited quantities to regular customers at current prices. A few producers are anxious for business, and it is also said that some interests may be helping to bear the market in order to drive production to a lower level.

**Tin**—Lack of buying has forced the market back almost to its former low level. In the past week it has fallen from 25.75c to 24.50c. Otherwise, new developments in the situation have been lacking.

**Lead**—New business consists almost entirely of scattered car lots for prompt shipment, but prices are unchanged.

**Aluminum**—New business is quiet but prices continue steady on new metal.

## Coke By-Products More Active; Toluol Stronger

**New York**—Demand for toluol exceeds production, with prices stronger at 27.00c to 29.00c, producers' plants, for tank lots. More strength also is noted in pure and 90 per cent benzols, with fairly good business placed at 20.00c. Solvent naphtha and commercial xylol are unchanged. With the drug trade rounding out its contract requirements in anticipation of the spring cleaning season, spot business in naphthalene flakes and balls is fairly brisk. Flakes appear firm. Spot buying of suphate of ammonia is sluggish, with contract tonnage fair. Sulphate of ammonia is $1.80 to $1.90 per 100 pounds, Atlantic seaboard.

## Coke By-Products

| | Spot |
|---|---|
| **Per Gallon, Producers' Plants, Tank Lots** | |
| Pure benzol | $0.19 to 0.20 |
| 90 per cent benzol | 0.19 to 0.20 |
| Toluol | 0.27 to 0.29 |
| Solvent naphtha | 0.25 |
| Commercial xylol | 0.25 |
| **Per Pound at Producers' Plants in 250-Pound Drums** | |
| Phenol | 0.16 to 0.17 |
| **Per Pound at Producers' Plants** | |
| Naphthalene flakes | 3.75 to 4.75 |
| Naphthalene balls | 4.75 to 5.75 |
| **Per 100 Pounds Atlantic Seaboard** | |
| Sulphate of ammonia | $1.80 to $1.90 |

## Quicksilver Is Quiet

**New York**—Quicksilver is quiet at $100 to $101 a flask.

## Prices of the Week, Cents a Pound

| | Copper: Electro delivered | Copper: Lake delivered | Copper: Casting refinery | Straits Tin: New York Spot | Straits Tin: New York Futures | Lead N. Y. | Lead East St. L. | Zinc St. L. | Aluminum 98-99% | Spot Antimony | Ingot Nickel |
|---|---|---|---|---|---|---|---|---|---|---|---|
| April 15 | 9.75 | 10.12½ | 9.60 | 25.30 | 25.60 | 4.50 | 4.25 | 3.77½ | 22.90 | 6.87½ | 35.00 |
| April 16 | 9.75 | 10.12½ | 9.50 | 24.85 | 25.30 | 4.50 | 4.25 | 3.72½ | 22.90 | 6.87½ | 35.00 |
| April 17 | 9.50 | 10.12½ | 9.50 | 25.10 | 25.45 | 4.50 | 4.25 | 3.67½ | 22.90 | 6.87½ | 35.00 |
| April 18 | 9.50 | 10.12½ | 9.50 | 25.00 | 25.35 | 4.50 | 4.25 | 3.65 | 22.90 | 6.87½ | 35.00 |
| April 20 | 9.50 | 10.00 | 9.50 | 24.50 | 25.85 | 4.50 | 4.25 | 3.62½ | 22.90 | 6.80 | 35.00 |
| April 21 | 9.62½ | 9.75 | 9.50 | 24.62½ | 24.92½ | 4.50 | 4.25 | 3.65 | 22.90 | 6.80 | 35.00 |

# Europe

**European Markets Firmer—Russia Places More Orders in Germany—British Exports Up**

**London**—(*By Radio*) — A better tone is noted in European iron and steel markets. Prices in Germany, France and Belgium are firmer, and in Belgium increases are reported, especially for semifinished. Russia is placing substantial orders in Germany.

In Great Britain the market for railroad material is brighter. Heavy steel prices are unchanged and it is believed the bottom of the decline has been reached. Less steel is being purchased by British consumers from Continental makers as stocks are plentiful. Rolling mills have only small orders. The market for pig iron is quiet. Exports of East Coast hematite have improved, following price concessions.

British iron and steel exports in March totaled 170,289 tons, compared with 143,525 tons in February, and 337,712 tons in March, 1930. Imports amounted to 210,467 tons, against 177,056 tons, and 280,292 tons in March last year.

## Some Improvement Shown in British Steel

**Birmingham, Eng.** — In Middlesbrough there is a change for the better in pig iron and preparations are in hand for relighting several blast furnaces. This is due to orders placed on the northeast coast for heavy steel. Most of the output of iron is going into use at producers' own consuming works and sales are largely confined to operations between ironmasters and home buyers.

Export trade has been disappointingly small and it is estimated that March returns will probably show a decrease of some 5000 tons. East Coast hematite is weak despite efforts of producers to obtain a better price. The quotation of £3 7s 6d ($16.39) is being shaded and demand is not sufficient to bring about stabilization.

Railroad material is likely to be in fair demand if the big companies carry out their programs as outlined. Experiments with steel sleepers are proving successful and many miles of permanent way are to be equipped with steel sleepers in the next few years. Mills rolling rail material at Barrow are well employed and Middlesbrough firms producing this material are more active than for some time.

Contracts for shipbuilding steel are urgently needed but there is no sign of revival in this direction. In the north of England the call for structural steel is well maintained in contrast to the Midland market. Some leading engineers in the Birmingham district have no large contracts on books.

### Steel Scrap Prices Weak

Steel producers everywhere are cautious in purchases of steel scrap and deliveries are suspended in many cases. Prices have fallen below prewar levels and it is believed that when trade revival comes the general level of steel scrap prices will fail to rise to the heights of the boom years since the war. Merchants believe that it will be more satisfactory to agree upon a moderate figure which is capable of yielding a reasonable profit. Present prices are barely sufficient to cover expenses.

The firmer tone of the Continental market has been maintained, apart from some cutting by individual merchants anxious to obtain business at any price. It is now generally believed the new quarter will bring a definite upturn in semis. Rerollers in this district have heavy stocks which they see no prospect of using and are not interested in the Continental position at the moment. They are almost certain, however, to buy if the firmer tone now revealed continues for a few weeks. In the present state of trade the requirements of Midland consumers are limited, owing to light demand for products in which foreign material can be used successfully.

### Price of Tin Plate Holding

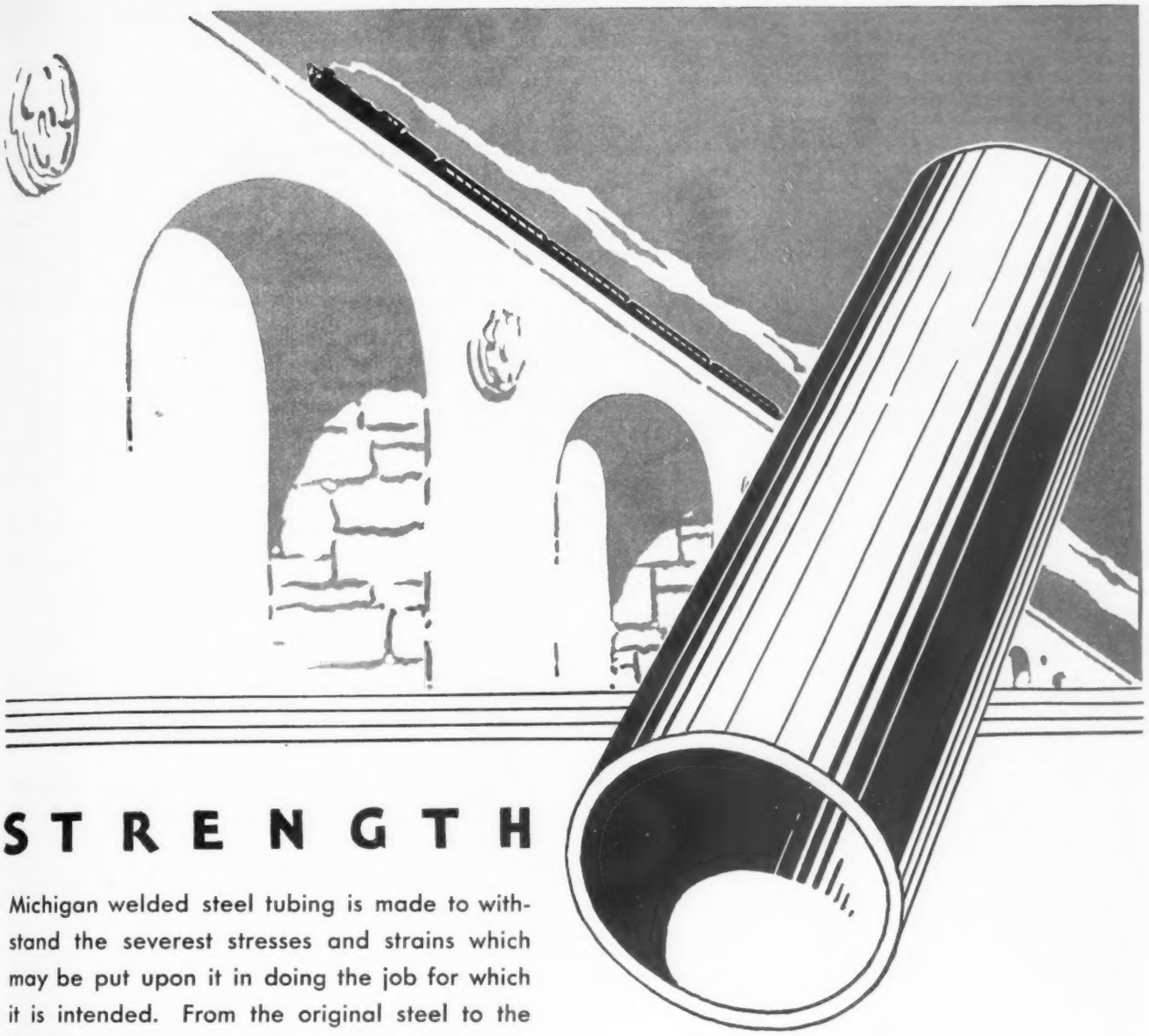
Tin plate producers are maintaining a firm hold upon prices and the improvement in the tone of the market has been continued in the last few days. Output is not more than 50 per cent of capacity and brisk inquiry from overseas markets is needed to bring about starting of idle mills.

While the development of British canning is proceeding apace, it is essential that revival should take place

## Current Iron and Steel Prices of Europe

| Dollars at Rates of Exchange, April 20 | *British* Gross Tons U. K. Ports | | *French* Metric Tons Channel Ports | | *Belgium and Luxemburg* Metric Tons Channel Ports | | *German* Metric Tons Rotterdam or North Sea Port | |
|---|---|---|---|---|---|---|---|---|
| **Export Prices f.o.b. Ship at Port of Dispatch—By Cable** | | | | | | | | |
| **PIG IRON** | | £ s d | | £ s d | | £ s d | | £ s d |
| Foundry No. 3**..... | $14.22 | 2 18 6* | $12.15 | 2 10 0 | $12.15 | 2 10 0 | $12.15 | 2 10 0 |
| Basic-bessemer..... | 14.58 | 3 0 0† | 11.54 | 2 7 6 | 11.54 | 2 7 6 | 13.37 | 2 15 0 |
| Hematite, Phos. .02-.05 | 16.28 | 3 7 0 | ..... | ..... | ..... | ..... | 17.01 | 3 10 0 |
| **SEMIFINISHED STEEL** | | | | | | | | |
| Billets..... | $26.12 | 5 7 6 | $16.77 | 3 9 0 | $16.77 | 3 9 0 | $16.04 | 3 6 0 |
| Wire rods..... | 41.31 | 8 10 0 | 29.16 | 6 0 0 | 29.16 | 6 0 0 | 29.16 | 6 0 0 |
| **FINISHED STEEL** | | | | | | | | |
| Standard rails..... | $40.10 | 8 5 0 | $31.59 | 6 10 0 | $31.59 | 6 10 0 | $31.59 | 6 10 0 |
| Merchant bars..... | 1.68c | 7 15 0 | .85c | 3 17 0 | .85c | 3 17 0 | .86c | 3 18 0 |
| Structural shapes..... | 1.68c | 7 15 0 | .78c | 3 10 6 | .78c | 3 10 6 | .78c | 3 11 0 |
| Plates..... | 1.79c | 8 5 0 | .96c | 4 7 6 | .96c | 4 7 6 | 1.02c | 4 13 0 |
| Sheets, black, 24 gage | 1.90c | 8 15 0 | 1.80c | 8 4 0 | 1.80c | 8 4 0 | 1.94c | 8 16 0 |
| Sheets, gal., 24 ga. corr. | 2.71c | 12 10 0 | 2.23c | 10 2 6 | 2.23c | 10 2 6 | 2.31c | 10 10 0 |
| Bands and strips..... | 2.06c | 9 10 0 | .96c | 4 7 6 | .96c | 4 7 6 | .99c | 4 10 0 |
| Plain wire, base..... | 2.06c | 9 10 0 | 1.10c | 5 0 0 | 1.10c | 5 0 0 | 1.10c | 5 0 0 |
| Galvanized wire, base.. | 2.39c | 11 0 0 | 1.43c | 6 10 0 | 1.43 c | 6 10 0 | 1.38c | 6 5 0 |
| Wire nails, base..... | 2.39c | 11 0 0 | 1.13c | 5 2 6 | 1.13c | 5 2 6 | 1.16c | 5 5 0 |
| Tin plate, box 108 lb... | $ 3.77 | 0 15 6 | ..... | ..... | ..... | ..... | $ 8.26 | 1 14 0 |
| **Domestic Prices at Works or Furnace—Last Reported** | | | | | | | | |
| | | | French Francs | | Belgian Francs | | Renten Marks | |
| Fdy. No. 3 Pig Iron** | $14.22 | 2 18 6 | $11.93 | 305(2) | $11.12 | 400 | $18.58 | 78 |
| Basic pig iron..... | 14.58 | 3 0 0 | 12.74 | 325(1) | 11.95 | 430 | 20.37 | 85.50 |
| Furnace Coke..... | 2.92 | 0 12 0 | 6.19 | 158 | 5.00 | 180 | 5.10 | 21.40 |
| Billets..... | 26.12 | 5 7 6 | 19.21 | 490 | 17.24 | 620 | 26.32 | 110.50 |
| Standard rails..... | 1.79c | 8 5 0 | 1.41c | 785 | 1.57c | 1,210 | 1.37c | 127 |
| Merchant bars..... | 1.68c | 7 15 0 | .94c | 520 | .88c | 680 | 1.38c | 128 |
| Shapes..... | 1.90c | 8 15 0 | .99c | 550 | .86c | 665 | 1.35c | 125 |
| Plates..... | 1.95c | 9 0 0‡ | 1.26c | 700 | 1.03c | 790 | 1.58c | 147 |
| Sheets, black, 24 gage | 1.90c | 8 15 0 | 2.21c | 1,230 | 2.34c | 1,800 | 1.26c | 117 |
| Sheets, gal. 24 ga., corr. | 2.39c | 11 0 0 | 2.66c | 1,475 | 2.73c | 2,100 | 3.56c | 330 |
| Plain wire..... | 2.06c | 9 10 0 | 1.98c | 1,100 | 2.15c | 1,650 | 2.24c | 207 |
| Bands and strips..... | 2.06c | 9 10 0 | 1.23c | 685 | 1.27c | 975 | 1.60c | 148 |

*Middlesbrough; †Basic; ‡delivered; (1) Basic-bessemer; (2) Longwy. British export furnace coke £0 12s 0d ($2.92) f. o. b. Ferromanganese £16 9s 0d ($79.95) delivered Atlantic seaboard, duty-paid. German ferromanganese £9 0s 0d ($43.74) f. o. b.; **Silicon 2.50-3.00. British quotations are for basic openhearth steel. French, Belgian, Luxemburg, and German are for basic-bessemer steel.



# STRENGTH

Michigan welded steel tubing is made to withstand the severest stresses and strains which may be put upon it in doing the job for which it is intended. From the original steel to the finished product — in every step in its formation — strength is built in, to be an inherent characteristic of every piece. The great care in welding — the very strenuous tests to which the tubing is put is an assurance that it will give satisfaction wherever used.

CHICAGO—Steel Sales Corp., 129 South Jefferson

ST. LOUIS—E. R. Hensel Steel & Copper Co., Planters Bldg.

# MICHIGAN

## STEEL TUBE PRODUCTS COMPANY

## BUFFALO STREET, DETROIT

on a general scale in the export markets if the Welsh tin plate industry is to be restored to prosperity. There is no life in black plate or galvanized sheet trades. According to returns just issued India is buying more galvanized sheets from Britain than from any other country, although Belgium is a keen competitor, selling at cut prices.

## Luxemburg Steel Drops

**Brussels**—Output of pig iron in Luxemburg in January was 183,130 metric tons, compared with 183,680 tons in December, 1930. Output of steel ingots and castings in January was 171,591 metric tons, against 182,951 tons in December, 1930. Comparisons follow, in metric tons:

| Mon. ave. | Furnaces on last day | Pig iron | Steel ingots and castings |
|---|---|---|---|
| 1913 | .... | 212,000 | 111,000 |
| 1928 | 38 | 231,000 | 214,000 |
| 1929 | 37 | 242,000 | 226,000 |
| 1930 | 26 | 206,000 | 189,000 |
| 1931 | | | |
| Jan. | 25 | 183,130 | 171,591 |

## Belgian Output Declines

**Brussels**—Output of pig iron in Belgium in January, 1931, was 270,360 metric tons, compared with 270,520 tons in December, 1930. Steel ingots and castings produced in January were 263,120 metric tons, against 271,690 tons in December, 1930. Figures follow, in metric tons:

| Mon. ave. | Coke | Act. Furn. | Pig iron | Steel ingots and castings | Finished steel |
|---|---|---|---|---|---|
| 1913 | 294,000 | ..... | 207,000 | 205,000 | 155,000 |
| 1928 | 494,000 | ..... | 325,000 | 328,000 | 281,000 |
| 1929 | 499,000 | 58 | 341,000 | 344,000 | 296,000 |
| 1930 | 447,000 | 44 | 283,000 | 282,000 | 232,000 |
| 1931 | | | | | |
| Jan. | 417,100 | 45 | 270,360 | 263,120 | 173,290 |

## Beware of Radical Laws, Metal Trades Warned

(*Concluded from Page* 25)

brought a flood of legislation proposals, many of which if enacted would give expression to a paternalism that must eventually work hardships upon the entire body politic. This is the most outstanding problem with which manufacturers will have to cope in the immediate future. The chief difficulty in this situation is the failure of the general public to recognize industry's problems and what it is doing to solve them. And this is largely because industry itself is inarticulate in its own definitions and statements."

The only paper bearing directly on the causes of the depression and the way out was that presented by John W. O'Leary, National Bank of the Republic, Chicago, and former president of the association. The only suggestion he made as to the way out was summed up by him as follows:

'Regardless of our position, regardless of our wealth, we can aid in a needed and happy return to normality by intelligent self-thinking management of our own affairs; distinguishing between extravagance and good living, between common sense and hysteria, between gossip and fact; in shodt, by minding our own business.

"Extravagance," he further said, "resulted from the new era theory, but it is no worse than penuriousness in this period. It sounds like hersey to suggest any curtailment of inventive genius but unless power to absorb can be coincident with new surplus, we only retard progress, and not aid it."

### Banker Scoffs at "Bugaboo"

Another banker's view of "inventive genius" was expressed by Franklyn Hobbs, Central Trust Co., Chicago, when in speaking of "The Machine Age and Its Consequences." He said:

"The most senseless bit of buncombe which is offered for our consumption today is the bugaboo of technological unemployment caused by machinery. It takes more men and a larger percentage of our entire population now than it did a generation ago to man the machines, and in that generation of time we have installed more machinery than any other country in the world has ever possessed."

And a scientist's view was expressed by Dr. Herman Schneider, dean of the University of Cincinnati, when at a luncheon talk he held 200 delegates spellbound for an hour with a popular talk on atoms, molecules and electromagnetic laws, explaining how abstract scientific research is affecting industry and business.

"Invention of new labor-saving devices does not cause unemployment; for every new device, somewhere, brings new demands for labor," he declared.

The more practical side of the machine question was touched on by E. F. DuBrul, general manager, National Machine Tool Builders' association, Cincinnati, in saying that keeping a company's funds "liquid" by holding on to outworn machine tools sometimes results in liquidating the company.

"Carnegie," he reminded them, "never built a plant in a boom; he always waited for hard times. We need 1000 Carnegies now among the users of machine tools." And he recited a jingle: "Old machine in the shop, shows obsolescence at the top."

Though given wide distribution, the pamphlet by Magnus W. Alexander, president, National Industrial Conference board, New York, was not presented, Mr. Alexander not being present, owing to illness. In his paper written for the association he said: "It is fallacious to argue that wage rates must be maintained despite reduction in the cost of living in order to protect the standard of living of American wage earners."

The association had on its program two speakers who interpreted the economic siuation from the statesmen's point of view; Charles Aubrey Eaton, congressman from New Jersey, and A. O. Stanley, formerly governor of and senator from Kentucky. Both advocated a return to fundamental American principles.

"Hoover," declared Mr. Stanley, "never said a wiser thing than when he said: 'Democracy arises out of individualism and prospers through it alone.' Now, more than ever we need less politics in business and more business in politics; we need relief from a surfeit of laws."

Mr. Eaton drew a picture of world unrest. He said that just as masses of men in the past fixed their minds on common objectives, such as religious and political freedom, so they are today "for the first time in history" concentrated on the idea of economic freedom.

"Either the American or the Russian way will rule the world," he declared. "When a conclusion is reached there will be no doubt about the result.

"The communistic type of reaction is growing by leaps and bounds. I sat in congress and heard the demands that the American government do for the people that which for hundreds of years they have been doing for themselves.

"Your factories are clinics in civilization; you have it in your power to lift your workers up out of the proletarian plane."

He gave some example of how this could be done, such as giving workers an interest in the business.

### Paper on Training Read

The report of the educational committee was read by Harold S. Falk, the Falk Corp., Milwaukee; C. W. Pendock, the LeRoi Co., Milwaukee, read a paper on "Foremanship Training Accomplishments"; H. W. DeBruin, Jeffrey Mfg. Co., Columbus, O., described results attained with the Columbus system of organized apprenticeship, and Philip M. Morgan, Morgan Construction Co., Worcester, Mass., presented the report of the safety committee.

"Our Transportation Problems to Date," was the subject of a paper by Samuel O. Dunn, editor, *The Railway Age*.

All officers were re-elected and the following made councillors: W. R. Angell, Continental Motors Corp., Detroit; Roe S. Clark, Package Machinery Co., Springfield, Mass.; A. H. Tuechter, Cincinnati Bickford Tool Co., Cincinnati and W. D. Hamerstadt, Rockwood Mfg. Co., Indianapolis.

# BOLTS...BOLTS...BOLTS...

## page after page after page of them

A very large corporation making heavy machinery had, over a period of years, added to its bolt and nut designs until they filled 64 large blue prints. The engineers, purchasing department, and shop men often spent considerable time thumbing through the pages of this "catalog" before finding the information needed for specifying, ordering, and shop procedure.

The "catalog" contained numerous odd sizes and odd lengths of bolts and nuts. Finish specifications, in many cases, were not standard. The result of attempting to follow this voluminous file of information was numerous small and special orders which increased costs and delayed production. Often assembly of some enormous machine was delayed.

We suggested a simplification and a standardization of this machinery company's bolt and nut designs. In co-operation with their engineering department, we prepared three pages of blue prints which displaced the old 64-page "catalog." Since then our customer has saved money in many ways, and always gets prompt service on its orders.

The R B & W Engineering Service is at your command to help you plan the proper bolting material for your products.

*Bolts in process—a photograph by Bourke-White*

## RUSSELL, BURDSALL & WARD BOLT & NUT CO.

PORT CHESTER, N. Y. ROCK FALLS, ILL. CORAOPOLIS, PA.

*Sales Offices at* Philadelphia, Detroit, Chicago, San Francisco, Los Angeles, Seattle, Portland, Ore.

R B & W EMPIRE BOLTS & NUTS

# Machinery

CONDITIONS in and around Chicago stand out this week in an unusually colorless machine tool market. Elsewhere things have flattened out in a way which shakes faith in predictions of late spring recovery, which up until now have been reiterated quite generally. There continues to be a fair demand for grinding machinery, builders of heavy machinery for steel mills are relatively busy, and hopeful reports come from the textile and shoe machinery industries. Events of importance are reported to be imminent in Detroit aumotobile circles, and judging from the present scarcity of machine tool orders there, equipment business awaits these events.

**New York**—Machine tool demand here is profoundly dull. Aside from continued buying by the Amtorg Trading Corp. for shipment to Russia, there is no trading activity of any importance. Dealers in most cases point to a falling off in their business, as compared with last month. Railroads and ship yards generally are out of the market, industrial plants supplying what little domestic business there is. General Electric Co., Schenectady, continues to buy an occasional tool. Dealers now are inclined to abandon their hopes for spring recovery and look for little material gain before fall.

**Worcester, Mass.**—Some improvement has been noted during the past week. Inquiries made by the Navy department several months ago have developed into orders for several lathes and drills. Otherwise, the market generally is spotty.

Foreign demand for grinders still accelerates the market, and steady shipments on these orders are being made. The domestic grinder market is flat, although one order for a special machine for a New England manufacturer promises revelation of something new in grinder construction when delivery is made several weeks hence. The market for small tools shows little activity.

**Pittsburgh** — Machinery market conditions have changed but little, the quiet conditions of the past 30 days continuing. This failure of inquiries to develop into orders in many cases is bitterly disappointing. Pending and prospective work is only fair but supports some hope for improvement in buying in the near future. Single tools predominate in orders and inquiry. As compared to machine tool conditions builders of heavy mill machinery continue to be relatively busy. The crane market is quiet.

**Cleveland**—Machine tool builders and dealers are inclined to be pessimistic on account of a particularly colorless week. With standing orders, both domestic and foreign, rapidly being completed, the dearth of prospects even for single machines is decidedly disappointing. This situation has shaken faith in late spring improvement which has been predicted with considerable confidence up until now. On the other hand, it still is looked for by certain well informed industralists.

Activity among manufacturers of electrical equipment, and of household accessories such as washing machines, vacuum cleaners, etc., continues, and announcement has just been made that the manufacture of a well-known foreign cleaner will be begun immediately by a Cleveland manufacturer of sewing machines.

**Chicago** — Machine tool orders closed in the Milwaukee district led local activity during the past week, although a few heavier tools were sold in the Chicago district. Inquiry is out covering several radial drills, and Chicago, Burlington & Quincy railroad is inquiring for a large hacksaw and several other items. A Milwaukee manufacturer has closed on a 42-inch lathe, a heavy-duty planer and radial drills.

Reports are current that Studebaker Corp., South Bend, Ind., may revive a worthwhile inquiry which has been lying dormant for some time, also that a road machinery builder in the Chicago district may purchase some equipment.

## Will Broadcast Salute to Machinery Industry

A radio program of interest to all engineers and executives in the metalworking field will be the salute to the machinery industry arranged by Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa., to be presented over the blue network of the National Broadcastnig Co., Sunday, April 26, at 8:45 p. m., eastern standard time. Further details of this broadcast were announced on page 92 of the April 16 issue of STEEL, although the time was incorrectly given as 9:45 p. m., eastern standard time.

## Kempsmith Announces Plans for Milling Machines

In its issues of Jan. 8, Jan. 29 and Feb. 12, STEEL published articles pertaining to the sale by Kempsmith Mfg. Co., Milwaukee, of part of its milling machine business to Jos. T. Ryerson & Son Inc., Chicago. To clarify any confusion that may have arisen from these announcements, the following information supplied by the Kempsmith Mfg. Co. is presented.

The Kempsmith company has retained and will continue to manufacture an improved line of cone-type milling machines, a recently added line of modern light and medium weight geared-head quality milling machines having extremely powerful spindle drive and wide range of speeds, and a line of both belt driven and geared-head hand millers. The cone-type machines are made in Nos. 1, 2 and 3 sizes, both in plain and universal styles. The geared-head machines are made in sizes Nos. 1 and 2 and it is planned to add a special No. 3 model immediately.

The light geared-head machine with built-in circular table also will be featured. This machine is designed for high speed, low production cost on small and moderate sized articles. Attachments to accomplish much the same object also are offered for use on conventional knee-type machines.

In addition, the Kempsmith company has retained a complete line of auxiliary milling machine equipment such as universal, vertical and other attachments for vertical milling, slotting, rack cutting, rack indexing, cam milling, etc., including universal dividing heads, indexing machines, attachments, vises, arbors, etc. The company also retained the repair parts business, which is substantial due to the large number of Kempsmith millers now out in the lines retained.

These machines and auxiliary equipment will continue to be marketed through dealers of Kempsmith products, which include the Arch Machinery Co., Pittsburgh; C. H. Gosinger Machinery Co., Dayton, O.; Jenison Machinery Co., San Francisco; Lynd Farquhar Co., Boston; National Supply Co., Toledo, O.; Jos. T. Ryerson & Son Inc., Chicago; Smith Booth Usher Co., Los Angeles; Charles A. Strelinger Co., Detroit; Strong, Carlisle & Hammond Co., Cleveland; Syracuse supply Co., Syracuse, N. Y.; Vandyck Churchill Co., New York, and Carolina Supply Co., Greenville, S. C.

# Construction and Enterprise

CONCISE, TIMELY BUSINESS BUILDING OPPORTUNITIES IN FIELD OF INDUSTRY

## New England

BRISTOL, CONN. — Connecticut Light & Power Co., Hartford, Conn., plans erection of a steam power plant on Riverside avenue. Oil fuel will be used in boiler installation. Harold A. Hayden, Bristol, Conn., is architect. Estimated cost, $100,000.

NEWINGTON, CONN.—Keeny Mfg. Co., Main street, has let contract for erection of a 45 x 120-foot plant addition. Cost is estimated at $40,000, with equipment.

CAMBRIDGE, MASS. — Riverside Boiler Works Inc., 50 Harvard street, has let contract to F. Leroy Fox Inc., 101 Milk street, Boston, for plant alterations and additions. Approximate cost, $40,000.

PORTLAND, ME.—Cumberland County Power & Light Co. is considering construction of a hydroelectric development to be located on the Saco river. Cost is estimated at $450,000.

KEENE, N. H.—Henkel & Son, Congress street, manufacturers of steel specialties, will rebuild a portion of their plant, recently damaged by fire with loss estimated at $25,000.

LITTLETON, N. H.—Power house will be erected by Littleton hospital. Plans have been prepared.

## New York

BROOKLYN—Bureau of supplies and accounts, navy department, Washington, will receive bids April 28 on schedule 5585 for 22 hand-driven testing generators for delivery to the naval supply depot here and for 11 to be delivered at Hampton Roads, Va. Bids will be received May 5 on schedule 5508 for delivery here for 30 electric air compressors using direct current and for 20 using alternating current.

ELMIRA—City council proposes to purchase pumping machinery for sewage plant extension, to be made at a total cost of $1,000,000. City engineering department is in charge.

LOCKPORT—Wille Mfg. Co., 60 Market street, advises that a plant has been leased and that the company will manufacture playground equipment and garden specialties. Sanding machines and saws will be purchased. Operations will be confined to woodworking for the present, but charter covers metalworking also. (Noted April 16).

NEW YORK—Highest Grade Machinists Corp. has been incorporated with $10,000 capital by E. Weiss, 25 Broad street.

NEW YORK—Mark Erdrich & Co. has been incorporated with $50,000 capital by Joseph & Demov, 295 Madison avenue, to deal in machine tools.

NEW YORK—Just Rite Metal Products Co. has been incorporated with 200 common shares by G. J. Cooper, 15 Park row, to manufacture metal devices.

NEW YORK — Freeport Texas Corp., 122 East Forty-second street, through a subsidiary, Cuban-American Manganese Corp., plans to build the first plant unit for manganese mining operations at Santiago, Cuba, private plans for which are being prepared. Maturity is indefinite. Cost is estimated at $1,500,000.

SYRACUSE—Golf Drive Machine Co. has been incorporated with $30,000 capital by Melvin and Melvin, to make sports devices.

## New Jersey

BOONTON — Schickerling Electric Products Inc. has been incorporated with 10,000 common shares by Nelson C. Doland, 421 Main street, to make electrical appliances.

CAMDEN—Specialties Equipment Co. has been incorporated with 1000 common shares by James S. Gradwell, to manufacture farm implements.

FT. LEE—Mineral Deeds Inc. has been incorporated with 11,000 common shares by Lester C. Burdett, 551 Fifth avenue, New York, to deal in metal for building purposes.

KEARNY—Public Service Gas & Electric Co., subsidiary of Public Service Corp. of New Jersey, Terminal building, Newark, N. J., will let contract soon for equipment to be installed in a power plant addition to be erected here. Unit will develop 75,000 kilowatts and will cost about $1,000,000. United Engineers & Constructors, 112 North Broad street, Philadelphia, are in charge.

## Pennsylvania

ELMWOOD—Walter B. Gilbert & Co. has been incorporated with $20,000 capital by Walter B. Gilbert and George W. Brose to manufacture and sell ventilators, air conditioning equipment and other sheet metal products.

HUMMELSTOWN — Pennsylvania Power & Light Co., Allentown, Pa., has secured a large site here for eventual construction of a power substation.

LATROBE—San-Way Corp. has been incorporated with $75,000 capital by Fred P. Underwood and Roy C. McKenna, to manufacture and deal in sanitary and plumbing wares.

McKEES ROCKS—Supreme Signal Co. has been incorporated with $25,000 capital by Francis J. Farley, 100 Chartiers avenue, to manufacture and deal in automatic signal devices, automobile accessories and devices. Craig T. Gracy, 6531 Bartlett street, Pittsburgh, is also interested.

PHILADELPHIA—Superior Bearings Co. Inc. has been incorporated with $5000 capital by Henry B. Swaab, 1106 Prospect avenue, Melrose Park, Pa., to manufacture and sell bearings, automobile parts and automobile accessories.

PITTSBURGH — American Die & Forge Co. has been incorporated with $5000 capital by G. F. Ritenbaugh Jr., 1202 Dennison avenue, to manufacture and deal in iron, steel and other metals. C. W., R. B., and S. B. Heppenstall also are interested.

## Ohio

ALLIANCE—Machined Steel Castings Co., W. E. Trump general manager, is undertaking an expansion program which includes erection of a 40 x 100-foot storage unit, where a crane will be installed, and a 25 x 30-foot addition to the core room. Sand mill equipment, including conveyor, will be added, and new molding machines are to be installed. Improvements are to be completed in about two months. Cost is estimated at $55,000.

CLEVELAND—J. C. Virden Co., 6103 Longfellow avenue, manufacturer of electrical products, has let contract to the George A. Rutherford Co., 2725 Prospect avenue, for a 2-story, 35 x 152-foot addition. Estimated cost, $40,000.

COLUMBUS—Warehouse and contents owned by J. M. Baker, 2694 Ferris road, recently were virtually destroyed by fire. Baker is manufacturer of steam washing machines, 500 of which were included in the loss.

GREENFIELD—Irwin Dunlap, attorney, is local representative of interests which are planning to build a hydroelectric plant on Paint creek near here. Initial expenditure will amount to approximately $750,000.

WARREN—United States Gypsum Co., 300 West Adams street, Chicago, has plans for a 1-story plant to be built on Phoenix road at a cost of about $100,000. Plant will be used for the manufacture of metal arches.

YOUNGSTOWN—Standard Slag Co. will build a slag grinding plant. Approximate cost, $40,000.

ZANESVILLE—Zane Casting Co. has purchased a site for expansion of facilities. Foundry, machine shop and storage unit will be erected.

## Indiana

GARY—American Sheet & Tin Plate Co. is reported to plan a plant addi-

tion, to cost $50,000. Plans are private..

TERRE HAUTE—Terre Haute Malleable & Mfg. Co. will build a foundry addition, plans for which are being prepared. Cost is estimated at $40,000.

## Michigan

DETROIT—Wolverine Saw & Knife Co., 6501 Mack avenue, has been incorporated with 5000 no par shares by A. F. Skibbe, 2968 Philip avenue, to manufacture woodworking implements.

DETROIT—Michigan Railway Materials Co., 834 Penobscot building, has been incorporated with $10,000 capital by Maurice D. Mitshkun, 834 Penobscot building, to deal in railway tracks and materials.

DETROIT—Detroit Electric Car Co., A. O. Dunk president, with plant on Piquette avenue, will move to a new location at 1601 Lafayette street about May 15. New unit will furnish about 40,000 square feet additional space.

GRAND RAPIDS—Progressive Reeltone Corp., 600 Parkwood street northeast, has been incorporated with 2000 no par shares by Harold J. Ringold, to manufacture and operate sound equipment for theaters.

JACKSON—City will expend $147,000 for waterworks extensions, to include purchase of turbine pumps.

OWOSSO—Advance Castings & Mfg. Co., formerly of St. Louis, Mich., is locating here in one of the units of the Owosso Foundry Co. Production has been started. John Spousta is head of the company.

STURGIS—Reiss Efficiency Tool Co. has been incorporated with $100,000 capital by C. W. Kirsch, who will be president of the company, and Frank Reiss, Kokomo, Ind., who will be vice president and general manager. Company will manufacture devices for the automatic setting of screws and bolts. Reiss company formerly was located at Kokomo.

## Illinois

CHICAGO — Blaumatic Corp., 3945 North Spaulding avenue, has been incorporated with $25,000 capital by Anna Mae Blackstone, 6529 Mozart street, to manufacture locking devices.

CHICAGO—Petro Nokol Co., 131 West Pershing road, has been incorporated with $20,000 capital by McKay, Resa & Russell, 160 North LaSalle street, to make oil burning devices.

GRANITE CITY—Danville Brick Co., Danville, Ill., will build a plant here for processing slag and manufacture of a lightweight aggregate. Handling and processing machinery will be required. Cost of construction is estimated at $150,000.

LEMONT—Stone crushing plant and other units, including machine and blacksmith shops of the Consumers Co. recently were virtually destroyed by fire. Loss is estimated at $250,000.

WAUKEGAN—Standard Welding Co. plans to rebuild its plant, recently noted as having been damaged by fire. Estimated loss, $40,000. (Noted March 19.)

## Southern States

BIRMINGHAM—Cutting plant of Reed Bros. Stone Co., 3000 Eighth avenue north and unit of Birmingham Smelting & Refining Co., 815 North Thirteenth street, recently were damaged by fire. Loss is estimated at $40,000.

ST. PETERSBURG, FLA.—Shippers Equipment Co., H. E. Wendell president, Eighteenth avenue and Fourth street south, is expanding production of containers, including those made of metal.

SAVANNAH, GA. — Southeastern Machinery & Supply Co. has been incorporated by John J. Bouhan, David S. Atkinson and Alexander A. Lawrence.

NEW ORLEANS—Bates Valve Bag Co., subsidiary of St. Regis Paper Co., 15 Broad street, New York, will erect a plant here, to include a machine shop unit.

NEW ORLEANS — Thermolar Inc., organized to manufacture a heating plant unit, has secured plant space at 323 Lafayette street and has started production.

KNOXVILLE, TENN.—MacDonald Steamotor Co., box 1335, recently organized to develop products invented by T. J. MacDonald, will place a plant in operation about May 1. Steam washing machines and other steam operated devices will be produced.

MEMPHIS, TENN.—Layne & Bowler Inc. has let contract to Meers & Wallenta, 63 South Third street, for a 2-story storage unit at 2005 Chelsea avenue. Company manufactures vertical centrifugal pumps.

HAMPTON ROADS, VA.—Bureau of supplies and accounts, navy department, Washington, will receive bids May 5 on schedule 5588 for four corrugated furnaces for Scotch boilers.

NORFOLK, VA.—Bureau of supplies and accounts, navy department, Washington, will receive bids May 5 on schedule 5595 for one portable arc welding set and accessories.

## Missouri

KANSAS CITY—National Air Transport Co., 5936 South Cicero avenue, Chicago, will build a hangar here, recently noted as proposed. Plans are private. Estimated cost, $80,000. (Noted Jan. 8.)

ST. LOUIS—Permanent Concrete Burial Vault Co. has been incorporated by Otto E. Rugg, 910 Syndicate Trust building. A new plant has been acquired at 4730 Newcomb place.

ST. LOUIS—Sun Electric Mfg. Co., 2410 South Fourth street, has been organized by E. J. Rauch, who is to be president of the company, to manufacture health appliances.

## Arkansas

MAGNET—Herman Cornell, Phil-tower building, Tulsa, Okla., and M. S. Williams, Tulsa, are interested in a project to develop a barite mine here, for which machinery will be required. Paul E. Williams, 14 Wall street, New York, also is interested.

## Oklahoma

BOISE CITY — Cimarron Utilities Co., Borger, Tex., C. R. Stahl manager, will construct a compressor station here.

## Texas

DALLAS—F. Spaeth Machine Shop, 616 North Akard street, is building a new shop at 3100 Floyd street, at a cost of about $3000.

DALLAS—Guiberson Corp., S. A. Guiberson Jr. president, Forrest street, will establish a plant for the manufacture of diesel engines for aircraft.

DALLAS—King Burner Co. Inc., box 5001, advises that equipment has been secured and a plant leased. Company will manufacture gas burners. Charles Sibbitt is president and W. A. Catlett vice president. (Noted April 9.)

DALLAS—Simms Oil Co., Magnolia building, plans construction of a pipe line from Lathrop field, Gregg county, to its local refinery. Tentative plans call for two pumping stations, with steam-driven machinery. Frank Gardner is chief engineer.

ENNIS — Southern Pacific railroad will make improvements and extensions to its locomotive shops here. Estimated cost, $60,000.

GATESVILLE—Moore Implement Co. has been incorporated by W. G. Moore and H. S. Compton, to make implements.

LONGVIEW—T. P. McAdams Supply Co. has been incorporated with $50,000 capital by T. P. McAdams, to operate a pipe machine shop and supply business.

## Wisconsin

EAU CLAIRE—Eau Claire Sand & Gravel Co. is building a new crushing plant with capacity of 50 cars per day. A. Owen Ayres is president and general manager.

MONROE—City has awarded contract to Burrell Engineering & Construction Co., 1 North Canal street, Chicago, for construction of a new municipal sewage disposal plant.

RACINE—Waterworks improvement project recently noted as undertaken by the city will include erection of a service building to house meter shop, machine shop, garage and construction department. Walter Pierce is secretary of

the board of water commissioners. (Noted Feb. 5.)

## Iowa

AUDUBON—City will purchase four 150-horsepower pumps in connection with waterworks improvements. Cost is estimated at $40,000.

CEDAR RAPIDS—Universal Crusher Co. proposes to build a plant addition. Cost is estimated at $40,000.

HARPER—Continental Construction Co., subsidiary of H. L. Doherty & Co., 208 South LaSalle street, Chicago, has let contracts for structures here to cost $200,000. An 88 x 146-foot compressor station, warehouse, shop, and other units are included.

IOWA CITY—Iowa state university, care of state board of education, state house, Des Moines, Iowa, will build a mechanical engineering laboratory, to cost $60,000.

## Nevada

LAS VEGAS—Union Pacific railroad, H. C. Mann chief engineer, 1416 Dodge street, Omaha, Nebr., plans erection of a steam-operated power plant here, to be built at a cost of $80,000. A traveling crane will be installed.

## Pacific Coast

LOS ANGELES—G. Wilbur Cornelius, 1234 Romulus street, Glendale, Calif., will go into production on a new type of aircraft after further tests and experiments. Maturity is indefinite.

COTTAGE GROVE, OREG.—Bruce Allen and Z. A. Coop, formerly of Tillamook, Oreg., will establish and operate a foundry here.

ELMA, WASH.—City council is considering erection of a municipal light and power plant, to be equipped with deisel engine unit. Estimated cost, $85,000.

SEATTLE—Canal Sheet Metal Works Inc. has been incorporated with $35,000 capital by K. E. Loop and Warren Brown Jr.

SPOKANE, WASH.—Barde Steel Co., L. P. Barde vice president, Seattle, has acquired a site at Trent and Sheridan streets here for a warehouse, 100 x 200 feet. Overhead cranes will be installed. Initial cost of construction will approximate $150,000.

## Dominion of Canada

RED DEER, ALTA.—National Fence Co., Scott building, Winnipeg, Man., is having plans prepared for the erection of a plant here, 50 x 75 feet, estimated to cost $200,000.

VANCOUVER, B. C.—Western Bridge Co. Ltd., First avenue and Columbia street, advises through J. A. MacFarlane, vice president in charge of operations, that plans are being prepared for the construction of a new steel fabricating shop in the near future. Unit will consist of three 70-foot aisles about 350 feet long, with provision for extension to 500 feet in length. Initial capacity, approximately 2500 tons per month. Cost, $400,000 to $450,000, including machinery. Plans are being prepared by company's engineering staff. No contracts have been let. (Noted April 2.)

RED INDIAN LAKE, N. F.—American Smelting & Refining Co., 120 Broadway, New York, is reported to plan construction of a mill addition and other improvements here. Estimated cost, $500,000.

BIRCH CLIFF, ONT.—Scarborough township public utilities commission will purchase equipment in connection with enlargement of the waterworks plant, at a cost of $100,000.

HAMILTON, ONT.—Hydroelectric system of Hamilton will erect a substation and install equipment. Preliminary plans are being prepared for a unit to cost $150,000. E. J. Sifton, 12 King street east, is engineer. W. J. Walsh, Terminal building, is architect. (Noted Feb. 12.)

OSHAWA, ONT.—Fittings Ltd. has been incorporated with 10,000 no par shares by Arthur W. Holmsted, barrister, Railway Bank building, Toronto, Ont., to manufacture and deal in stoves, furnaces and boilers.

MONTREAL, QUE.—George W. Reed & Co. Ltd., 4107 Richelieu street, is having plans prepared by T. Pringle & Sons Ltd., 410 St. Nicholas street, for the erection of a foundry estimated to cost $100,000.

# New Trade Publications

FORMING MACHINES—Baird Machine Co., Bridgeport, Conn., has issued a bulletin on its four-slide wire forming machine, with illustrations showing the variety of work possible to turn out through it.

FORGING MACHINES — National Machinery Co., Tiffin, O., in its machine talk No. 77 illustrates forging of a pivot post on its machine, with illustrations of the dies and the sequence of operations.

PRECISION TOOLS—Ex-Cell-O Aircraft & Tool Corp., Detroit, has compiled a booklet covering its plant, personnel and products. The growth of the original idea to the present status is outlined and successive steps described. Most of the story is told in pictures.

HEATING UNITS—Bulletins by the Reznor Mfg. Co., Mercer, Pa., illustrate and describe its gas-fired warm air forced circulation heater and its heating and ventilating unit. They are fully illustrated to show construction, operation and installation and engineering data are included.

HERRINGBONE GEARS—A catalog, No. 136, has been issued by the D. O. James Mfg. Co., Chicago, covering its line of continuous-tooth herringbone reducers and gears, giving dimensions, prices and horsepower ratings according to speed and ratio. Illustrations show many installations.

METAL-CUTTING BAND SAW — William Laidlaw Inc., Belmont, N. Y., in a current bulletin describes its metal-cutting band saw, equipped with low-pressure hydraulic feed, replacing the gravity feed previously used. Illustrations show details and full specifications are given.

STEEL PARTITIONS—A book on office planning has been issued by the E. F. Hauserman Co., Cleveland, manufacturer of movable steel partitions. It suggests plans of office layout based on long experience, from simple to complex plans. Suggestions cover a wide variety of arrangements.

ANTI-SLIP PRODUCTS — Elevator sills and door saddles composed of anti-slip products, as used in recent New York buildings, are shown in a leaflet by the American Abrasive Metals Co., 50 Church street, New York. The leaflet also contains a list of the 89 buildings in New York of 30 stories or more.

PORTABLE BELT CONVEYORS—Fairfield Engineering Co., Marion, O., has issued Bulletin 40-1 to convey information concerning its portable belt conveyors and their application to handling materials. They are from 20 to 60 feet in length for handling sand, gravel, crushed stone, concrete, scrap, grain and cinders. Electric or gasoline power units are used, as desired.

CARBON BRUSHES—A manual on carbon brushes has been issued by the National Carbon Co., Cleveland, designed to simplify the selection and specification of carbon and metal-graphite brushes. Essential details for a complete brush specification are listed and discussed in convenient sequence. A cross index of grades and their applications has been substituted for the usual tables presenting physical characteristics.

LAPPING—A booklet by the Norton Co., Worcester, Mass., deals with commercial lapping for close limits and high production. The first part concerns itself with the progression of commercial lapping, its origin and development, fields for use, advantages and methods in hand and machine production. The second part describes types and operation of Norton lapping machines, vertical and horizintal. Illustrations and data tables are ample.

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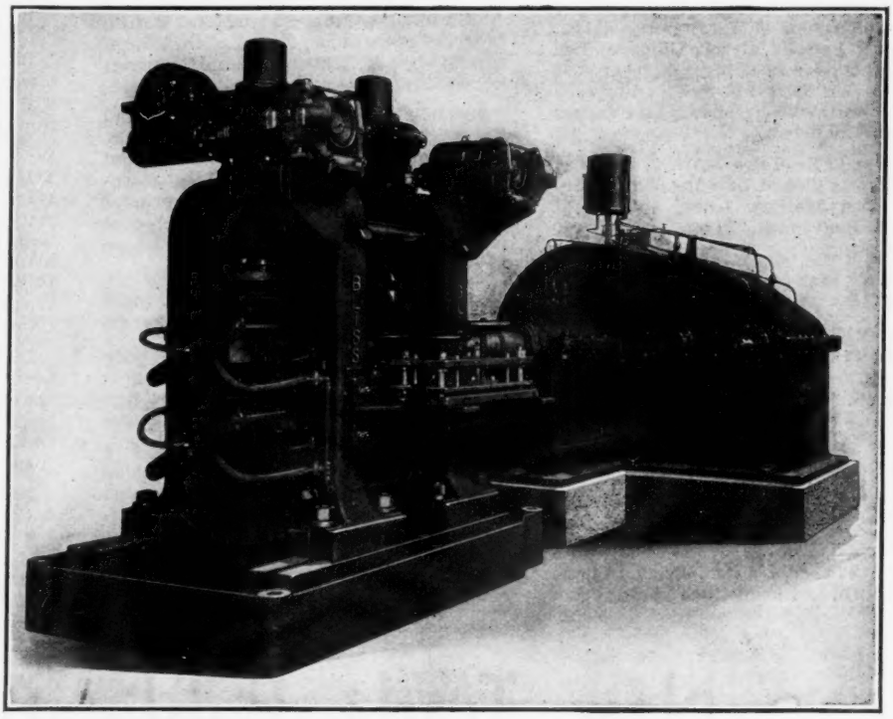

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